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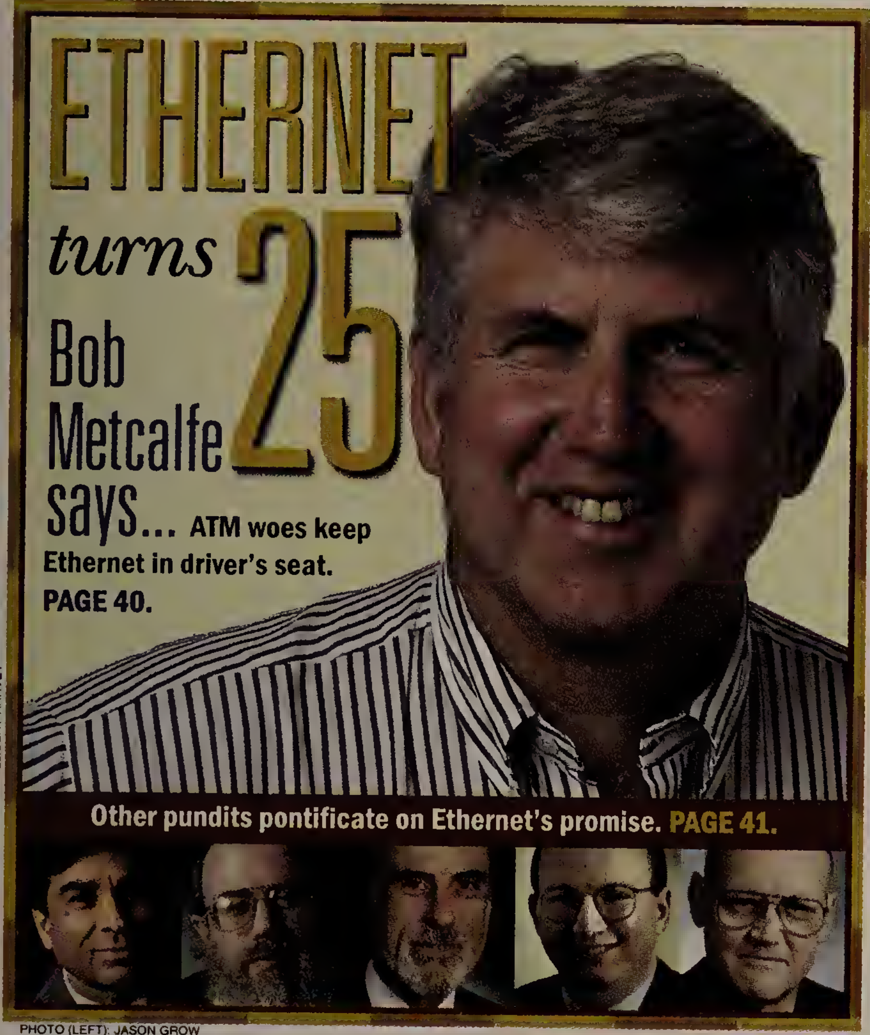
MAY 18, 1998 VOLUME 15, NUMBER 20

NetworkWorld

THE NEWSWEEKLY OF ENTERPRISE NETWORK COMPUTING

Rolling out encryption technology across corporate networks is a challenge of global proportions. Page 8



Bob Metcalfe says... ATM woes keep Ethernet in driver's seat. PAGE 40.

Other pundits pontificate on Ethernet's promise. PAGE 41.

MILLICENT HARVEY

PHOTO (LEFT): JASON GROW

Critics blast SBC mega-deal

$56 billion purchase of Ameritech may not go as smoothly as PacTel buy, critics maintain.

By Tim Greene, David Rohde and Sandra Gittlen

SBC Communications, Inc. succeeded in buying Pacific Telesis last year, but taking over Ameritech Corp. may not be so easy.

SBC's proposed $56 billion deal, only a week old, is already in trouble. Critics say that by buying regional Bell operating companies, SBC will eliminate major potential competitors. The carrier already did so with the PacTel purchase. In addition, critics contend, SBC could become large enough to squash upstart competitive local exchange carriers (CLEC).

Lastly, critics fear the complexity of merging the two companies will stall new service initiatives from both carriers.

Some on Capitol Hill are rallying against the deal, claiming it points to serious flaws in the Telecommunications Act of 1996.

Different breeds

Adding Ameritech will give SBC a grip on the midsection of the country from Texas to Michigan, as well as control of a third of all telephone access lines in the U.S.

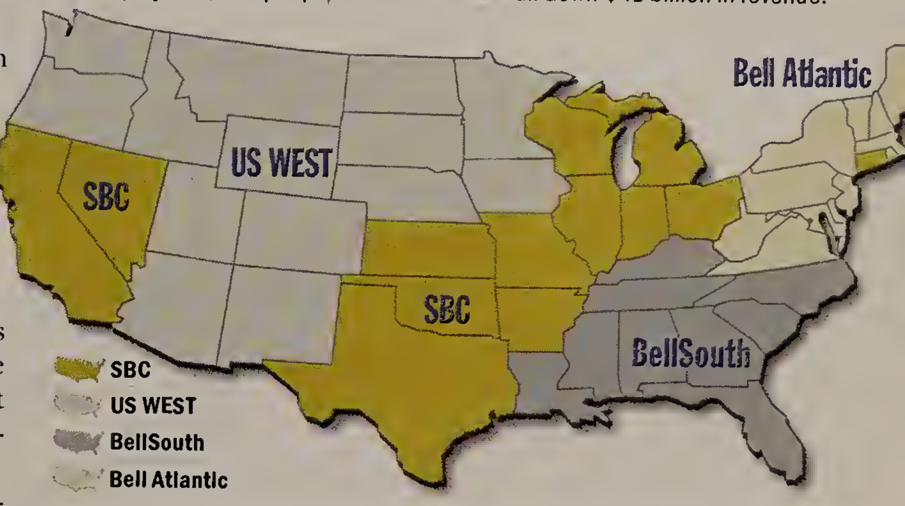
But while SBC and Ameritech are both Baby Bells born

See **SBC,** *page 12*

TOO MUCH LOCAL CONTROL?

If the SBC/Ameritech merger goes through, the combined company will:

- Control 57 million access lines—one-third of all lines in the U.S.
- Employ 191,000 people.
- Service a $22 billion long-distance market.
- Pull down $41 billion in revenue.



Microsoft grapples with DOJ

By Sandra Gittlen and Scott Lajoie

Last Friday was supposed to be a day of celebration for Microsoft Corp.

But instead of shipping Windows 98 to PC makers as planned, Microsoft was forced to turn its full attention to mounting legal matters. And with tension between the company and the federal government reaching a boiling point, the suddenly cooperative software

See **Microsoft,** *page 63*

MORE ONLINE

- An archive of articles about Microsoft's legal battles
- An online forum about the antitrust issues
- Copies of court filings

FIND IT ON FUSION 7128 www.nwfusion.com

Experts ask: Is Bay in play?

By Jim Duffy

Santa Clara, Calif.

Reports that Bay Networks, Inc. refused a buyout offer from Nortel spiked Bay's stock by 16% last week and whipped up a flurry of rumors and speculation.

Bay and Nortel officials would not comment, but sources said Nortel wants to an-

See **Bay,** *page 63*

Ellison drives stake right into NC heart

By Chris Nerney, John Cox and Doug Barney

Almost three years ago Oracle chief Larry Ellison began banging the drum for network computers (NC), claiming the low-cost Java-based devices would push aside clunky conventional PCs. Hopeful users wanted to believe him.

After a while the pounding got softer. Then Ellison grew nearly silent on the matter.

But in recent weeks, Ellison has once again taken up the topic, and in the process, dashed hopes for an NC corporate revolution.

Ellison and other Oracle offi-

See **Oracle,** *page 64*

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REVIEW: DOMAIN ADMINISTRATION MADE EASY *Our test of three tools for managing distributed NT domains turns up a World Class entry — Enterprise Administrator from Mission Critical Software.* **Page 51.**

NetworkWorld World Class

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ACROSS

1. See logo
4. Curtsy
7. Piece
8. Honest ____
9. Alias; abbr.
10. Tennis shot
11. Count on
15. Pair
16. NT - not!
21. Mister
22. Server need
23. Little bit
24. Dress edges
25. Stitch
26. Serious software

DOWN

1. For Pete's ____!
2. Eurasian range
3. Not there; abbr.
4. ____ & chain
5. Clarinet's kin
6. Net subset
7. Golfer's goal
12. Give ____ rest!
13. Hole punch
14. Snake that hugs
16. Trig function
17. Mates
18. ____ rabbit
19. Genie's home
20. Double curve
21. Help
24. This guy

■	1	2	3	■	■	4	5	6
7				■	■	8		
9			■	■	■	10		
11			12	13	14			■
■	■	■	15			■	■	■
■	16	17				18	19	20
21			■	■	■	22		
23			■	■	24			
25			■	■	26			■

See sun.com/puzzle for answers.

Sun microsystems

LET'S JUST SAY, YOU MAY HAVE SOME EXTRA TIME ON YOUR HANDS.

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STEVE BORNS

VPN VALIDATION

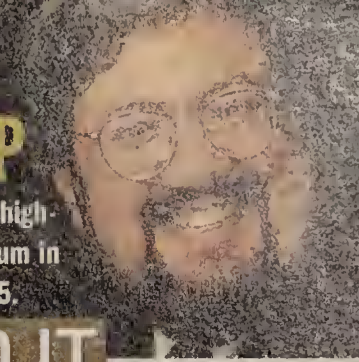
Memorial Hospital Alliance is racking up big cost savings thanks to its virtual private network. Page 52.

SPLIT DECISION

Columnist Howard Anderson advises against putting all your network eggs in one basket. Page 45.

FORUM CLOSES SHOP

Peter de Jager shuts down his high-profile Y2K whistle-blowers forum in light of legal concerns. Page 15.



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NetworkWorld World Class

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This Week

Only on Fusion

Keeping Current. April's AT&T frame relay outage was perhaps the first big test of service-level agreements. But what do SLAs really give you, and how should you use them? Fred McClimans discusses the issue, and we provide an SLA archive and forum. **DocFinder: 7140**

Network computers. Are they DOA? When even Oracle CEO Larry Ellison suggests plain old PCs are assuming the role he once forecast for the devices, is it time to let them go? Join our forum. **DocFinder: 7141**

Microsoft. Whether you want the latest news on its legal battles and Windows 98 or are looking for background on its cases, we've got the resource for you: An archive of relevant *Network World* and IDG articles and a forum in which to discuss them all. **DocFinder: 7142**

Help Desk. Our online Help Desk forum lets you post questions about network problems. Help Desk Editor Ron Nutter answers the queries — and so do other readers. **DocFinder: 7143**

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The Software Minute

Extending your enterprise in a connected world.

New suite for Windows NT® lets departments focus on business apps, instead of infrastructure. A new IBM Suite for Windows NT makes it easier to build, deploy and manage business applications. Fully integrated components include groupware, database, Internet, communications and storage management with backup and restore functions. Ships with Intel® LANDesk® Management Suite to simplify management of all desktop systems from a single point. www.software.ibm.com/min/nt1

New enterprise suite leverages core-business assets on the Windows NT platform. IBM Enterprise Suite for Windows NT adds industrial-strength connectivity and transactional components. It helps organizations leverage existing technology assets and skills by integrating Windows NT applications into core business systems. And using data from core systems in departmental Windows NT applications, evaluators can look for performance advantages vs. competitive offerings in three areas: deployment of Web applications; support for departmental business apps; and interaction between Windows NT applications and existing host and UNIX® systems. www.software.ibm.com/min/nt2

Make data from virtually any source available on Windows NT. IBM DB2® DataJoiner® offers unprecedented access and simplifies data consolidation across platforms. DataJoiner lets you view your data (IBM and other, relational and nonrelational) as though the data were local. Users can access and join tables located across multiple data sources with a single SQL statement without knowing the location of the source. Enables managers to answer their own queries at will instead of waiting for a report. www.software.ibm.com/min/dj

Answers that once took hours can now come in minutes. DB2 Universal Database™ Enterprise-Extended Edition now supports symmetric multiprocessors (SMPs) *and* clustered SMP systems on the Windows NT platform, allowing users to run the "killer queries" other databases can't. The power curve rises in near-linear fashion as processors are added, for predictable performance at any scale. Ideal for data warehousing and e-business applications where growth in data or users can be dramatic and "rip and replace" is not an option. Business-proven on AIX®, Universal Database EEE is also available for Sun Solaris™ as well as Windows NT. www.software.ibm.com/min/udb3e

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e-business

Accelerate business results of your new Windows NT apps.

IBM is offering free one-day business seminars in 13 U.S. cities, beginning this month. Subjects include new ways to make the most of Windows NT as a platform for electronic business and Business Intelligence applications. Dates, venues, and agenda details are at www.software.ibm.com/min/ntroadshow.

Volume I, Issue 5

IBM

Solutions for a small planet™

Nearly one-fourth of 1998 IT budgets at U.S. companies will be spent on Windows NT-related projects, according to IDC research.

FACT

News briefs, May 18, 1998

Dedicated to DSL

■ Some of the world's biggest phone companies last week got behind a proposed standard that would make digital subscriber line (DSL) technology easier to install. Deutsche Telekom, France Telecom, British Telecommunications plc, Singapore Telecom and the Netherlands' phone company, NTT, said they would back a proposed standard for universal DSL, a technology that supports up to 1.5M bit/sec downloads as well as simultaneous voice phone calls over a regular phone line. The international backers joined U.S. regional Bell operating companies and Compaq Computer Corp., Intel Corp. and Microsoft Corp. in supporting the proposed standard. A draft is expected sometime this summer.

Big Bay blowout

■ Bay Networks, Inc. next week will unveil the "management cornerstone" of its Adaptive Networking strategy with new products and statements of direction. On the product front, Bay will announce the first fruits of its Netsation Corp. acquisition in the form of Optivity management software that provides Web configuration of multivendor network devices. Bay will also divulge its plan for managing policy-based networks and network directories.

Carriers win right to charge new user fee

■ As expected, the Federal Communications Commission last week said local carriers can charge a new user fee to compensate carriers for implementing telephone number portability. The fee would apply only in areas where portability — the ability for users to change local carriers while keeping their phone numbers — is available. But starting next Feb. 1, all commercial and residential users in those areas, not just those who change carriers, would be hit with the fee. Under the FCC's formula, the fee comes to 50 cents to $1 per phone line, per month. Carriers have been pressing the FCC for compensation even while they have repeatedly missed the FCC's portability deadlines (*NW*, April 13, page 1).

Iridium moving from rocket pad to service launch

■ At press time, Iridium LLC, the first of the new low-earth orbit satellite network providers, was scheduled to blast the last of its 66 satellites into space from Vandenberg Air Force Base in California. The Iridium service, nearly a decade in development, is designed to offer global calling, paging and potentially low-speed messaging and file transfer from a single universal handset. Iridium said it plans to start offering its services on Sept. 23.

Get your hands off my 'Net stash

■ Vice President Al Gore last week announced a new Clinton administration plan to give U.S. citizens greater control over the personal information available about them over the Internet. The privacy plan includes a Web site that individuals can use to restrict access to credit record, driver's license data and a host of other personal information. The U.S. Federal Trade Commission will sponsor the new Web site (www.consumer.gov).

3Com issues security warning

■ 3Com Corp. last week issued a security advisory to users of its CoreBuilder and SuperStack II LAN switches due to widespread distribution of customer service and support logins. The logins are used for service and recovery procedures, and are issued only by 3Com's Customer Service Organization under conditions of "extreme emergency," such as in the event of a customer losing passwords. 3Com said the logins were published on the Internet by users chatting in a 3Com news group. Due to the login distribution, 3Com CoreBuilder and SuperStack II switches may be vulnerable to security breaches caused by unauthorized access via these special logins, 3Com said.

© 3Com: (888) 225-1733

Network Associates buys security

Company pays $25 million for Secure Networks, Inc.

By Ellen Messmer
Santa Clara, Calif.

Network Associates, Inc. last week continued its buying spree by announcing the acquisition of privately held Secure Networks, Inc. for $25 million.

With the purchase, Network Associates bagged Secure Networks' network-scanning tool, called Ballista, which is used to test IP networks for security holes.

Currently Ballista, which competes with similar tools from Internet Security Systems, Inc., starts at $4,000.

"But we plan to give Ballista away for free" as part of Network Associates' Net Tools Secure suite, said Peter Watkins, general manager at the Net Tools division of Network Associates.

Simply making the tool available on the Internet, as software companies often do, might be a bad move because hackers could find it useful for breaking into corporate networks. Network Associates is now pondering how to distribute Ballista for free without having it fall into the wrong hands.

PROFILE: SECURE NETWORKS, INC.

Headquarters:	Calgary, Alberta
Management:	Arthur Wong, president and founder
Main product:	Ballista, a network intrusion detection tool
Employees:	20
Key customers:	U.S. Army, National Security Agency

Distribution aside, the purchase brings Network Associates some big new customers.

According to Arthur Wong, president and founder of Secure Networks, the firm counts the National Security Agency and the U.S. Army Research Labs as two of its largest customers.

Current plans call for moving most of the 20-member staff at Calgary, Alberta-based Secure Networks to Network Associates' headquarters here.

The purchase is one of many recent buys for Network Associates. In March, the company acquired help desk vendor Magic Solutions, Inc. in a cash deal worth $110 million.

Network Associates has also recently acquired Pretty Good Privacy, Inc. and Trusted Information Systems, Inc. ■

Congress acts on Internet taxes, encryption

House committee approves bill that bans state and local 'Net taxes.

By Nancy Weil
Washington, D.C.

The U.S. House of Representatives' Commerce Committee last week approved a bill that forbids state and local governments from imposing taxes on Internet access charges for three years.

The Internet Tax Freedom Act was approved 41-0 and now is expected to go to conference discussions between the full House and the U.S. Senate. If the bill gains approval during those discussions, it will go to President Clinton.

The bill, sponsored by Rep. Christopher Cox (R-Calif.), also forbids new tax liability for consumers and vendors who conduct commercial transactions over the Internet.

The proposed legislation amends the 1934 Communications Act to say that the Federal Communications Commission cannot regulate charges that subscribers pay for Internet access and online services. The bill bars the FCC from collecting regulatory fees from Internet access or online services.

The bill further directs the Clinton administration to work with Congress to study U.S. and international taxation of Internet commerce before recommending how the U.S. ought to handle such taxes. The proposed legislation orders the administration to demand that the Internet be free of taxes and tariffs in other nations as well. "The Internet Tax Freedom Act is needed not just to make the Internet grow, but it is needed because the packet-switched architecture makes it uniquely susceptible to multiple and discriminatory taxation," Cox said.

Security measures

Separately, Sen. John Ashcroft (R-Mo.) and Sen. Patrick Leahy (D-Vt.) last week unveiled legislation with a dual purpose: Make it easier to export encryption products and prohibit government-mandated key-recovery systems.

The bill, dubbed the E-Privacy Act, would also set up a National Technology Center, where local, state and federal law enforcement agencies could go to get help when confronted with encrypted data during a criminal investigation.

Weil is a correspondent with IDG News Service's Boston bureau.

Be a NET KNOW-IT-ALL

For the **answer** to this week's question and more net trivia, **visit Network World Fusion** and enter **2349** in the DocFinder box.

GET THE ANSWER Now!

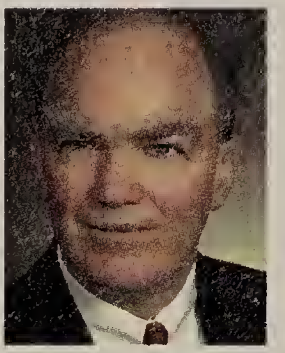
This week's question:

Which network security technology shares its name with a part of your arm?

Navigating the world of government encryption export rules

By Ellen Messmer
Washington, D.C.

Your global-minded organization has decided to use an IP encryption gateway or secure e-mail to protect traffic exchanged with subsidiaries and trading partners around the world.


Stewart Baker: *"In Africa, I've had officials tell us that if you bring in encryption equipment, they'll throw you in jail."*

This seems like a simple enough decision. By using the Internet, everyone will save money, and communications will be secure. However, the move will be anything but simple if you are the network manager charged with shipping the encryption products abroad and getting them installed.

That's because government agencies here and around the world often view strong encryption technology as a military weapon.

So before you ship that "virtual private network" with strong encryption abroad, you'll first need to get an encryption export license from the U.S. government. And quite possibly, you'll need to get an encryption permit to use the technology in other countries, such as France or Russia, which prohibit unregistered encryption use. Some countries, such as Saudi Arabia, simply ban encryption.

Just finding out what the cryptography ground rules are can be bewildering because many governments don't bother to spell them out. Why? Because the spy agencies and national defense organizations that set the guidelines want to have complete freedom when it comes to approving use of strong cryptography.

Even in the U.S., "what's written or published is only about 40% of what you need to know," said Ken Bass, a partner at Washington, D.C. law firm Venable, Baetjer, Howard & Civelletti.

In the U.S., you'll have to apply for your export license through the Department of Commerce. But behind the scenes, you'll also have to curry favor with the National Security Agency (NSA), the Federal Bureau of Investigation and the State Department.

About the only clear rule when it comes to shipping encryption technology is that you shouldn't even think of exporting anything to what the U.S. government considers to be pariah countries, such as Iraq, Cuba and Libya.

Otherwise, "from a regulatory standpoint, it's chaos," Bass said.

"But the NSA has determinative powers at [the] Commerce [Department] today," Bass said. Therefore, he makes regular trips to the NSA at Fort Meade, Md., to plead the case for his clients who want to ship equipment out of the country.

Under the known rules, financial institutions get special treatment to export strong 128-bit encryption technology. There is ardent debate in government circles about whether insurance companies should also get special treatment.

But even banks are restricted to encrypting only financial transactions and can't use their equipment for general-purpose communication, Bass said.

"In theory, you can get a special license for your trading partners, vendors or consultants," he added. "The most complicated [licenses] are for general-purpose public communications at 128-bit [Data Encryption Standard] levels. But [the feds are] not approving those."

ENCRYPTION EXPORT MADE EASY

Five ways to get a U.S. export license for encryption technology:

☑ 1) Choose to buy 40-bit encryption software products.

☑ 2) Use products that implement the Clinton administration's key-recovery scheme.

☑ 3) Use 56-bit products from certain vendors. Several vendors have told the Commerce Department they will implement key-recovery products by year-end, and in return the Commerce Department has temporarily allowed them to export some 56-bit products.

☑ 4) Apply at the Commerce Department for an "encryption licensing arrangement," which will allow you to ship 56-bit products without key-recovery to all of your company's subsidiaries and branches.

☑ 5) Apply at the Commerce Department for case-by-case licensing.

Getting the necessary export licenses to use strong encryption with your trading partners isn't easy, said Roszel Thomsen, an attorney at Baltimore-based Thomsen & Burke LLP.

For a company to convince U.S. encryption-export bureaucrats to allow it to conduct secure communications with its trading partners, "you get into multiple applications and extensive justifications," Thomsen said. "You have to show a long-term relationship with the business partner and provide evidence, such as contracts."

If your trading partner happens to be based in another country, getting approval can be mission impossible. The expert lawyers in this field all say they just won't take cases that are hard to get approved.

"Of course, this makes the Commerce Department look good because they can say they approved a large percentage of export licenses," Thomsen added. But this view overlooks the licenses that companies neglected to apply for because the companies figured they had no chance of getting the licenses approved.

Encryption regulations greatly complicate electronic commerce at firms that take security seriously. One of Wall Street's largest investment firms now conducts some high-stakes global trading on the 'Net, but cryptography rules require that some of the firm's international trading partners only use 40-bit encryption in their browser-based digital certificates.

"We know [the encryption is] breakable, but we can't do anything about it except add another layer of security, dynamic password tokens, for authentication," said the Wall Street firm's director of global security services.

Although encryption export remains a combination of "law and lore," as Thomsen calls it, he tells his clients there are five basic ways to get a U.S. export license (see graphic).

If a company decides to go the route of using NSA-approved key-recovery systems, the company can probably export whatever level of encryption technology it wants to use.

However, the Gauntlet firewall from Network Associates, Inc.'s Trusted Information Systems division, available with an option for encryption key recovery, may be the only product on the market that meets the NSA's criteria. And most customers just don't seem to want to buy key-recovery systems, which could allow governments around the world to eavesdrop on their data.

"Customers strongly want to be in control over their own systems," said Kelly Blough, Network Associates' director of government relations. "They want to determine how and when they can recover their encrypted data."

Global challenge

Figuring out U.S. encryption rules is tough, but figuring out other countries' rules can be nearly impossible.

Israel, France, Singapore and Hong Kong have restrictions on encryption import. And like the U.S., Europe is in the early stages of investigating how to set up key-recovery centers to hold digital certificates or encryption keys.

Cryptography used strictly for authenticating users' identities, such as digital signatures, is usually not subject to encryption export or domestic-use rules. But Germany and Malaysia appear to be among the few countries with rules pertaining to the provision of digital certificate services, according to Stewart Baker, an attorney here at international law firm Steptoe and Johnson LLP.

With the notable exception of France, most European countries don't make it hard for corporations to use encryption technology as they wish.

In France, where rules seem to be spelled out decently, users have to get encryption permits. Companies can also expect to have French authorities hold their encryption keys if they are not 40-bit, which is breakable, or if they are not based on key-recovery technology.

Corporations should be prepared to have their data intercepted and decrypted by French authorities, Baker said.

"Wiretapping has a long history of enthusiastic use in France," said Baker, claiming that French authorities pass on decrypted competitive secrets to local firms.

In areas of the world where few rules are written down, local government attempts to regulate encryption can get bizarre. "In Africa, I've had officials tell us if you bring in encryption equipment, they'll throw you in jail," said Baker, who next month will issue a book on encryption export called *The Limits of Trust*.

"The point is, you can't be sure if you're legal in a lot of areas," Baker added. ■

Where to find crypto info

Finding reliable information about the world's cryptography rules can be a chore. Fortunately, Dutch graduate student Bert-Jaap Koops, who attends Tilburg University in the Netherlands, has taken on this chore and shares his findings with others.

Koops' Crypto Law Survey Web site (http://cwis.kub.nl/~frw/people/koops/bertjaap.htm) has even won the admiration of lawyers, who deem it to be remarkably reliable — so far as anyone can tell.

Reached by e-mail, Koops said he has spent three years collecting information about crypto rules. He typically gets information from academic literature and policy reports. "I am also receiving more and more information from people all over the world, notably from business people who have queried the government of a particular country on its crypto regulations, and [from] users, who share their knowledge on regulations in their country," Koops wrote.

Another source of information on cryptography rules is run by the Global Internet Liberty Campaign (www.gilc.org). Also worth checking out are links on *Network World's* Web site (www.nwfusion.com, DocFinder: 7144).

— *Ellen Messmer*

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New IBM group targeting the telco/ISP market

By Marc Songini

When it comes to contending in the highly competitive market for telco and ISP wares, Big Blue has been a Big Mess.

But several signs indicate that IBM now wants to play hardball. The company recently landed a contract with Sprint Corp. that will let the carrier offer IBM frame relay and SNA hardware and services to big enterprise users. The contract was the first big win for a new group inside IBM's Networking Hardware Division (NHD) designed to win big telco and ISP business.

"By the year 2000, managed services and ISP services will be worth $32 billion. We intend to own a big part of that."

Robert Zimmer,
business line manager,
IBM's Service Provider Networks group

"We have at least seven other contracts pending, and we have lots of other products and services that will be available for the ISP and telco market by the end of the year," said Robert Zimmer, business line manager for the new Service Provider Networks group.

Zimmer declined to identify the other companies his group is in negotiations with, but sources said IBM has been talking with MCI Communications Corp. and AT&T. Neither MCI nor AT&T confirmed these reports.

While Zimmer provided few technical details, he said IBM later this year will roll out a high-end switch aimed exclusively at the ISP/telco market. He said the box will handle routing and switching and will help users funnel multiprotocol traffic onto carrier backbones. IBM already offers the Nways 2220 Model 200 — a small access switch that it will sell to telcos and ISPs, Zimmer said.

But products are not the Service Provider Networks group's only focus. Internally, the group has the power to work with other IBM divisions to package services — such as a server with storage systems and software, for example — and offer them to carriers.

And as of last January, the group had dedicated sales people to go after telco and ISP contracts.

"NHD has been in the telecom market for a while but has not had much to show for it," Zimmer said. "But we now have a concerted internal effort to make this business succeed." The thrust, Zimmer said, will be on selling packaged services targeting IP, SNA, voice and other net technologies.

By the year 2000, managed services and ISP services will be worth $23 billion. "We intend to own a big part of that," Zimmer said.

But success will not come easily. IBM has watched rivals such as Cisco Systems, Inc. and Bay Networks, Inc. build strong track records by installing their equipment in ISP and telco nets.

IBM has also let its hardware reselling agreement with Cascade Corp. expire — meaning Big Blue has no high-end switch to sell to telcos or ISPs.

It's going to be hard for IBM to succeed outside its own installed base, said Jerry Wetherington, systems coordinator at the University of Florida in Gainesville. IBM's ISP products and services are going to appeal most to those with IBM equipment already installed, he said.

"IBM is late to the game, but they could be a semicredible supplier to ISPs, and they can grab a piece of the market," said Howard Anderson, managing director of The Yankee Group consultancy in Boston. ■

Ameritech, US WEST to plug Qwest services

RBOCs teaming with Qwest to get into the long-distance game.

By David Rohde
Washington, D.C.

Ameritech Corp. may be doing the merger dance with SBC Communications, Inc., but on its own, Ameritech has hit on a new way to get into the long-distance business.

For its trouble, Ameritech could get sued by the big long-distance carriers.

Ameritech last week signed a deal to become what amounts to a commissioned sales agent for Qwest Communications Corp., the new national carrier that's halfway done building a super-fast 16,000-mile network.

Qwest is aching to put customer traffic on its OC-192 network even before the carrier closes its pending merger with long-distance carrier LCI International, Inc.

Ameritech will market Qwest's long-distance service under the Qwest brand and receive an undisclosed fee for every customer who signs up.

A week earlier, US WEST, Inc. likewise agreed to sell Qwest long-distance service and put local calling and Qwest long distance on the same bill under the name Buyer's Advantage.

Qwest President and CEO Joe Nacchio conceded neither RBOC deal is aimed at large enterprises. Ameritech will offer Qwest long-distance at a flat 9.5 cents per minute to commercial customers.

The fee is competitive with big carriers' small-business service rates, but more than the typical 5 to 8 cents larger businesses now pay with T-1 access lines. Residential customers will get a break, though: They'll pay 15 cents per minute during the day but only 7 cents per minute evenings and weekends — less than almost all offers from the major carriers.

But neither Ameritech nor US WEST has yet won federal authority to enter the long-distance business. So a gaggle of competitors, including AT&T and MCI Communications Corp., last week sued Qwest and US WEST for violating the Telecommunications Act of 1996.

Analysts said a similar suit against Qwest and Ameritech is likely. One complainant, the Association for Local Telecommunications Services — the trade association for competitive local exchange carriers — even labeled Buyer's Advantage as "US WEST's illegal long-distance marketing scam."

Qwest and regional Bell operating company officials did not act the least bit shocked that competitors were attacking the programs' legality. The RBOCs maintained that because they are simply marketing agents for Qwest, they are not actually "providing" long distance under the letter of the law.

Qwest hired Lloyd Cutler, former counsel to President Clinton and President Carter, to defend the deals. In a statement, Cutler said he was satisfied the deals "comply with all applicable laws." ■

Netscape rounds out e-comm line

By Andy Eddy
Mountain View, Calif.

Netscape Communications Corp. has announced the production release of BuyerXpert 1.0, a procurement application that completes the company's CommerceXpert line of electronic commerce products.

The CommerceXpert products were acquired by Netscape in its purchase of Actra Business Systems LLC from GE Information Systems last year.

BuyerXpert, which has been in public beta release since November, helps companies automate business-to-business purchasing and reduces paperwork by facilitating transactions via a Web browser. The product can also create templates for packages of items that are purchased regularly; the creation of multiple catalogs; custom pricing configurations; and diverse search capabilities.

Netscape tends to focus on open standards in its products, and BuyerXpert is no exception. The product provides compatibility with electronic commerce standards, such as Open Buying on the Internet and EDI Over the Internet.

BuyerXpert starts at $250,000 for a two-processor system on Sun Solaris. It also requires the ECXpert module, which provides basic commerce and transaction capabilities as well as linkage to EDI systems through the Internet.

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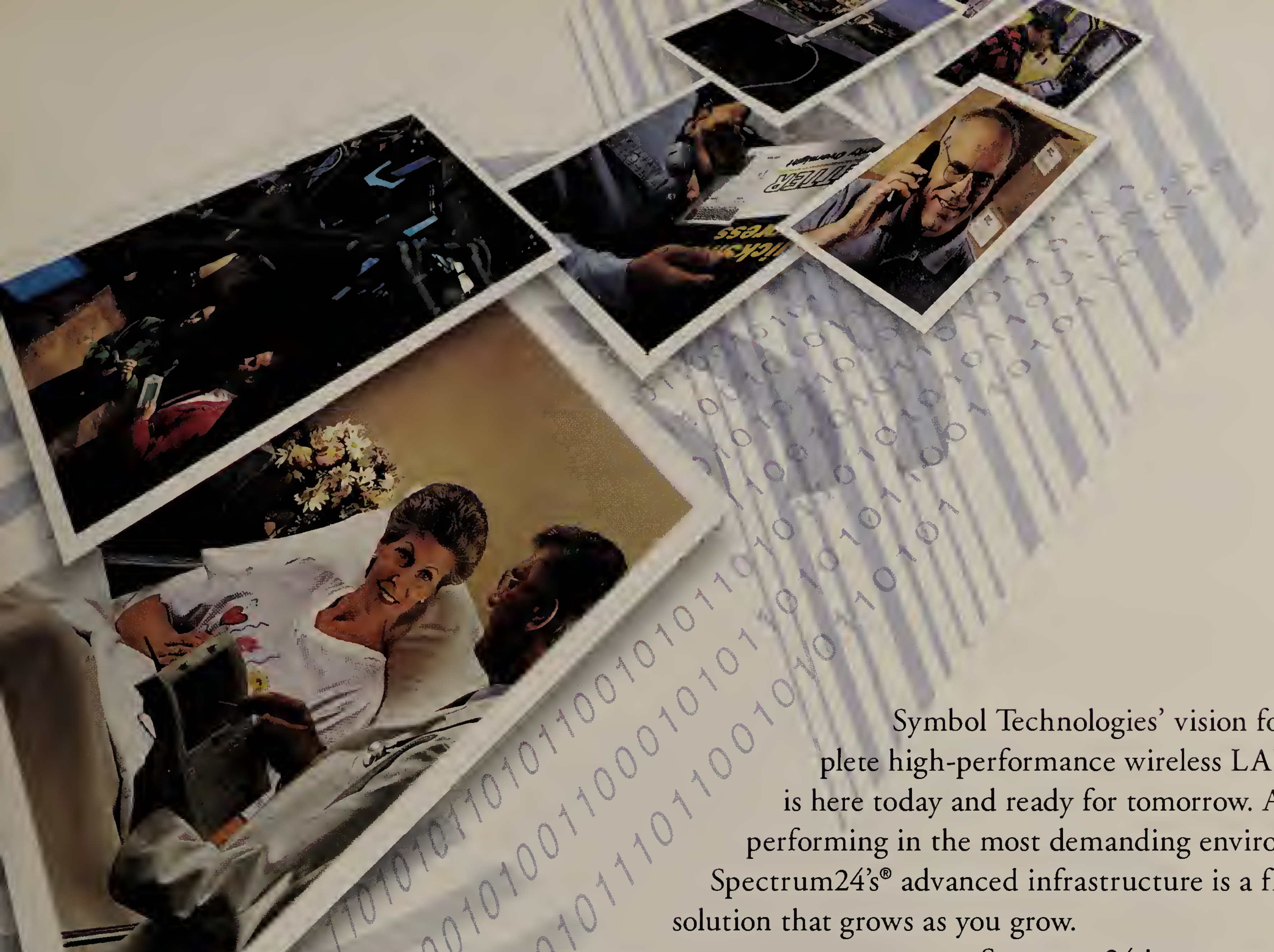

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SBC

Continued from page 1

of the divestiture of AT&T, they are far from twins. Ameritech, based in Chicago, serves five states and has a reputation for being among the leading carriers in the deployment of new technology. For instance, Ameritech is one of only three RBOCs to offer a commercial digital subscriber line service.

Ameritech also heavily promotes its managed service packages, getting inside the corporate LAN and managing equipment down to the desktop.

By contrast, San Antonio-based SBC offers digital services, including ISDN, dedicated lines, frame relay and ATM, but this RBOC's offerings mostly come without management packages. The exception is in California, where Pacific Bell has continued its managed service offerings.

SBC also has lagged in the deployment of advanced data services, according to Daniel Briere, president of TeleChoice, a consultancy in Verona, N.J.

But the strongest contrast between SBC and Ameritech is in their relationships with regulators. SBC is combative; Ameritech is diplomatic. Ameritech started its Customers First campaign in 1993 to convince Illinois regulators that Ameritech promoted local phone competition and deserved to be allowed into long-distance service.

SBC, on the other hand, went to court and won a ruling which states that telecom-act regulations outlining what RBOCs need to do to get into long-distance are unconstitutional. That ruling is under appeal.

NOT SO FAST

Getting approval to merge will not be a cinch for the following carriers:

Merging companies	Major obstacles	Date of expected FCC decision
SBC/Ameritech	Fears that SBC is attempting to reconstitute the old Bell System	Mid-year 1999 at the earliest
WorldCom/MCI	Alleged concentration of Internet backbone facilities; European Union investigation	Originally, this summer; but approval will likely come later
AT&T/TCG	Approval of local facilities for AT&T could leave the FCC without rationale to block RBOC deals	Q4

Competitive spin

In an effort to present the merger as pro-competition, SBC and Ameritech announced a "national/local" strategy, the companies' plan to sell local phone service in 30 cities outside of their region. Because the already-mighty SBC has barely taken any steps in that direction, the strategy was scorned by some.

"You don't need to combine Ameritech and SBC to do the national/local strategy," said Bob Taylor, president and CEO of Focal Communications Corp., a CLEC in Chicago. "I think that's just a bunch of hooey."

But SBC and Ameritech insist they need the power of their combined companies to afford to deploy local services outside their regions. The strategy was discussed by Ameritech CEO Richard Notebaert and SBC CEO Edward Whitacre during talks that started in earnest about six weeks ago. The talks culminated in a May 10 vote by both carriers' boards of directors.

Despite the companies' claims of increased competition, some users fear the effects of local carriers becoming even bigger. Carl Weinaug, city manager of Stillwater, Okla., has been trying without success to get a carrier to replace SBC.

"SBC is already a big gorilla in a small cage. It looks to me like it's becoming impossible for the small CLECs to make it," Weinaug said.

Other customers acknowledged that small CLECs might suffer, but they also argued that several large carriers with national reach are what is really needed in the telecom world. "You're going to have two or three big players, AT&T, WorldCom/MCI, Time-Warner. I think all the little companies will go by the wayside," said Phillip Skinner, telecommunications director, Ohio State University Medical Center, Columbus, which has a frame relay/ATM network.

But Skinner said the smaller CLECs have helped him by undercutting Ameritech prices and forcing Ameritech to come back with 12% to 15% price cuts. "Having the little guys around has opened up the avenues," Skinner said.

That may all change, he said. "You won't have little companies competing, you'll have the big conglomerates competing," Skinner continued.

Smaller carriers are not capable of meeting global networking needs, said Mort Rahimi, vice president of IT for Northwestern University in Chicago, which is a big Synchronous Optical Network (SONET) customer of Ameritech's. "To the extent that larger national companies make their presence known, I think it will reduce costs. Frequently, networking problems are national, not regional. I would rather see four to eight national companies than eight regional companies," Rahimi said.

"It may be advantageous to leverage size. I've anticipated five or six truly global carriers that could provide all services to all people. The jury is out on that," said Phil Evans, telecom manager at Perot Systems.

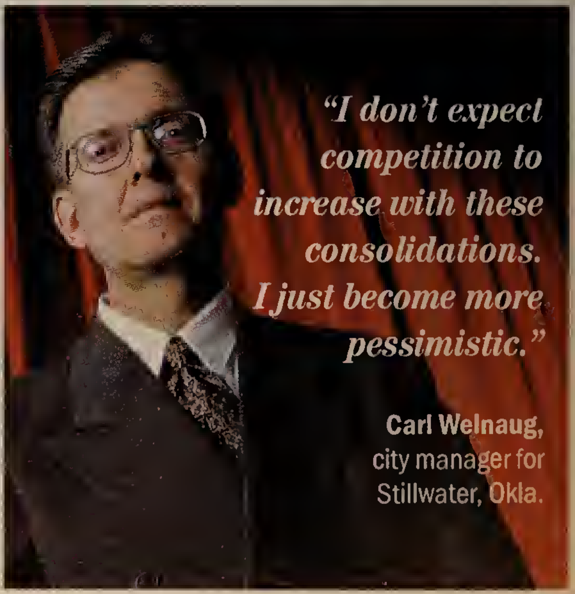
Even so, for at least two years after the merger, SBC will be distracted from focusing on competition. "The resources that might have gone into spurring market competition now go into the merger. There might be bodies allocated to competition, but they don't have a budget behind them," said Christine Heckart, vice president of broadband for TeleChoice.

Regulation

Congress could get involved in the deal. Senate Commerce Committee Chairman John McCain (R-Ariz.) voted against the 1996 act on grounds that it fails to give RBOCs the freedom to innovate. He said the law forces them to merge to survive. "The 1996 Telecom Act unintentionally, but quite effectively, stymies competition," McCain said in a statement. "The proposed merger of SBC and Ameritech is yet another example of the act's real-world effects."

In addition, the two top members of the Senate Judiciary Committee's antitrust subcommittee said they were very concerned about the deal and demanded an extensive review by the FCC and the U.S. Department of Justice.

Subcommittee Chairman Mike DeWine (R-Ohio) and ranking minority member Herb Kohl (D-Wis.) warned in a letter to regulators that the proposed merger could lead to "something approaching the old Bell system rather than the vigorously competitive landscape that the [Telecommunications Act of 1996] envisioned." ■



"I don't expect competition to increase with these consolidations. I just become more pessimistic."

Carl Weinaug,
city manager for
Stillwater, Okla.

DOUGLAS HOKE

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Looking back at SBC's last big buyout

SBC Communications, Inc.'s acquisition of Pacific Telesis about a year ago for $16.7 billion resulted in a culture clash of major proportions.

SBC, a fairly low-key carrier located in San Antonio, suddenly was in charge of PacTel, a San Francisco company heavily into glitzy marketing and promotions.

"It was beef vs. granola. Starched shirts vs. tie-dyed. It was a story in contrasts," said Daniel Briere, president of TeleChoice, a consultancy in Verona, N.J. But SBC has had a substantive impact on PacTel since the companies merged.

The biggest changes have come in PacTel's management ranks and organizational structure. On the other hand, few new services have emerged as a result of the merger, and prices have remained relatively unchanged. As for changes to customer service, it depends on who you talk to about it. SBC's presence has been felt perhaps most strongly at the top — many of PacTel's high-level executives are now history. For example, Chairman Philip Quigley and President and CEO Dave Dorman have left, and SBC has hand-picked their replacements.

On the business organization side, SBC last fall dumped a Pacific Bell unit that was responsible for providing competitive responses to users who solicited bids from competitive local exchange carriers.

"There was a lot of comment at Pacific Bell that you needed to get cowboy boots and do it the San Antonio way, and in San Antonio they didn't provide competitive responses," according to Richard Kuehn, president of RAK Associates, a telecom consulting firm in Cleveland.

Meanwhile, SBC unfolded a new strategy for dealing with state regulators. SBC set up its External Affairs Office to lobby state and local governments in an effort to curry future favorable regulatory treatment. That effort tripled PacTel's public relations staff to 3,000, a former staffer said.

Some customers wish the combined carrier would pay a little less attention to regulators and a little more to customer service. Ken Lund, telecom manager for Allen Lund Co., in La Canada, Calif., said that since the merger, PacTel has been slower to provide the local access piece of T-1 lines to his long-distance carrier, MCI Communications Corp.

Lund said PacTel also has made it difficult for him to move local traffic to MCI Metro, MCI's local phone service group. "[PacTel] has done things to make it very difficult to [move]. They are 90% of our problem and carry only 10% of our [traffic]."

But other customers said it is business as usual with PacTel. "There are no real changes that I've seen," said J.C. Murphy, senior telecommunications analyst with The Hartford in San Diego. She said her PacTel account team is intact, service is good and pricing has not changed.

— *Tim Greene*

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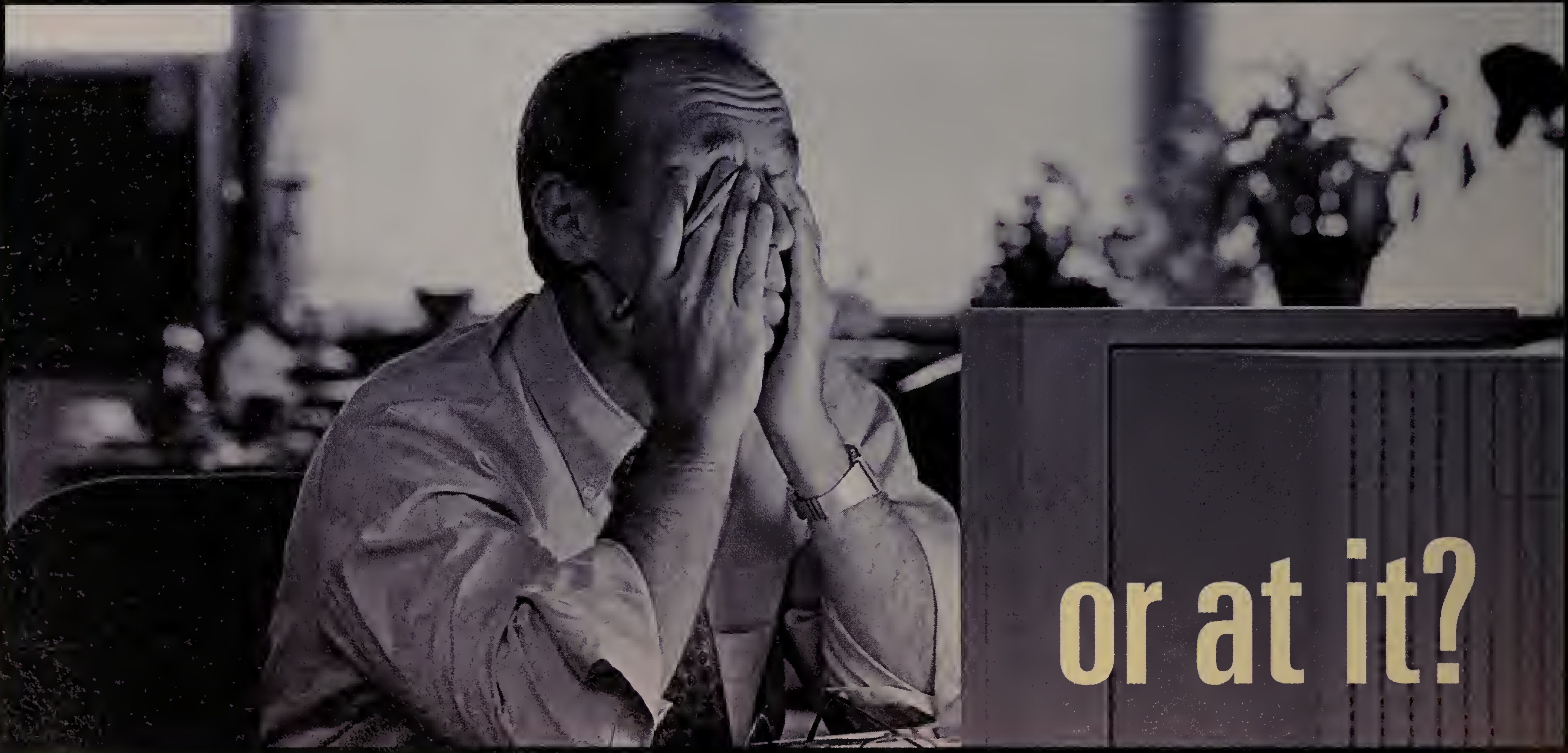

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Year 2000 whistle-blowers lose a forum

Legal concerns spell the end for Project Damocles as founder reluctantly abandons his Web-based creation.

By Paul McNamara

Peter de Jager has reluctantly concluded that the sword of Damocles is indeed double-edged.

A Year 2000 consultant and founder of the popular Year 2000 Information Center Web site, de Jager had established a Year 2000 whistle-blowers forum — dubbed Project Damocles — back in January (*NW*, Jan. 12, page 1). Legal concerns of his own, however, have forced de Jager to sheath his sword.

The creator of Project Damocles had intended to give customers and employees of high-tech product vendors a place to file reports about their knowledge of serious Year 2000 problems that were going unaddressed.

Once informed that such a report had been lodged against the company, de Jager reasoned the offenders would voluntarily clean up their acts rather than suffer punitive legal consequences down the road.

De Jager had hoped that Project Damocles would also prompt fuller disclosure by vendors and other companies that have been downplaying their Year 2000 liabilities.

However, that was before he started hearing from lawyers.

Risky business

"Strange things happened after Damocles started," de Jager said in a message recently posted to his Web site. "I got lots of free advice from lawyers."

Some told de Jager they had fears he would become a target of lawsuits filed by the companies that were being accused of negligence.

Others had warned that even though de Jager had no intention of accepting "expert witness" work on Year 2000 suits involving Project Damocles reports, he would undoubtedly be compelled to testify by the parties involved.

"The risk to me personally of being subpoenaed in perpetuity was just not something I was going to risk," de Jager said last week.

Calling it quits

Instead, he announced the disbanding of Project Damocles and deleted from his computer the "hundreds" of reports received at his Web site (www.year2000.com). Copies of these reports filed at his lawyer's office were also destroyed, he said.

While de Jager won't discuss specific Project Damocles reports in detail, he did say "there were a couple in there that gave me cause for concern. There was some stuff in there that should be acted upon."

Describing himself as more "frustrated" than angered by the demise of his project, de Jager said he believes government agencies should pick up where Project Damocles left off and encourage whistle-blowers to step forward. ■

"Strange things happened after Damocles started. I got lots of free advice from lawyers."

Peter de Jager, Year 2000 consultant and creator of Project Damocles

EAST BEATS WEST

Earlier this month at NetWorld+Interop 98, *Network World* hosted a trivia contest called NetBowl '98 that pitted East Coast industry leaders against executives from the West Coast. The second annual NetBowl raised more than $64,000 in cash and equipment for NetDay, the national volunteer effort to provide the nation's K-12 schools with networked computers and Internet access. The winning East Coast team included (left to right) The Yankee Group's Howard Anderson, Lucent Technologies, Inc.'s Karyn Mashima, FORE Systems, Inc.'s Eric Cooper and Cabletron Systems, Inc.'s Chris Oliver. The West Coast squad included 3Com Corp.'s Janice Roberts, Alteon Networks, Inc.'s Selina Lo, Cisco Systems, Inc.'s Larry Lang and Extreme Networks, Inc.'s Gordon Stitt.

JEFF SCHEID

Advertorial

Time's Up
for T1/T3 Multiplexers,
Says Nortel's Conner.

The T1/T3 multiplexer's era in the private network has passed. When these products were created, voice traffic was the biggest concern to enterprises. A network's reliability and performance now hinge on its ability to handle ever-increasing data traffic. In recent years, data has replaced voice as the primary communications carried on enterprise networks. With today's increasing demand for performance and bandwidth management, T1/T3 multiplexers have been left behind as a network consolidation vehicle. Furthermore, these networks may not be Y2K-ready, and problems are likely to be addressed through expensive upgrades.

Enterprises with mission-critical networks that rely on private T1/T3 lines and outdated T1/T3 multiplexers could face a network that can't handle today's growing traffic demands. A Y2K patch may not be the best solution because T1/T3 multiplexers simply were not designed to function in today's bandwidth-hungry environment. As a result, many companies are abandoning T1/T3 multiplexers altogether and upgrading to advanced switching technology that resolves Y2K issues and handles increasing network needs.

"Time's up for T1/T3 multiplexers," said F. William Conner, president of Nortel Enterprise Data Networks. "Enterprises that go for a Y2K patch are throwing good money after bad. Networks must be able to transition companies beyond the Year 2000 and meet performance, speed and reliability demands."

Nortel Enterprise Data Networks is helping many of its customers transition to Passport, a multimedia switch that will support integrated networking needs and meet the most stringent reliability requirements in the industry. Nortel's Passport allows its customers the flexibility to use today's most advanced networking technologies. Bandwidth and equipment cost savings of up to 50 percent, compared to T1/T3 multiplexers, enable an enterprise to pay for the technology in just a few years.

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AT&T creeps into IP telephony

Market trial opens in Boston, requires credit card, extra dialing.

By David Rohde

Basking Ridge, N.J.

Got a credit card and the patience to dial 31 digits? If so, you can participate in AT&T's IP telephony trial, provided you're in one of three cities selected by the carrier.

But don't expect the highly anticipated new service, dubbed Connect 'N Save, to become a corporate voice offering anytime soon. Connect 'N Save will be strictly a consumer service available only to individuals who register a credit card number with AT&T.

That's the word from AT&T, which very quietly began a market trial of the service last week in the Boston area. Additional trials are slated to begin later this month in Atlanta and San Francisco.

As of last Tuesday, consumers in the Boston area could prepay for $25, $50 or $100 worth of IP calling by dialing an 800 customer service line, said Ozzie DeFaria, an AT&T product manager.

When consumers call for the service, AT&T issues them a local access number along with an authorization code and a personal identification number (PIN). Each time the consumer dials those three numbers, an automated system tells the caller how much money is left in his account. The system then prompts the caller for the area code and phone number he wants to reach, DeFaria said.

Customers must dial a total of 31 digits to make a long-distance call over the network. The call is routed via a gateway over the AT&T WorldNet IP backbone, which directs the call back to the public switched telephone network at the terminating end for delivery to the number called.

AT&T is charging 8 cents per minute in the Boston trial. That price falls between the amounts being charged in the other trials (see graphic).

DeFaria said AT&T wants to see which of the three prices is enough of a discount compared with ordinary telephony prices to lure customers to AT&T's IP service. In demonstrations, the IP telephony offering has provided a slight but predictable delay in transmission.

Besides issuing press releases to local papers, AT&T is doing little active marketing of the service. "We only have limited capacity, so we're not doing a full-scale marketing launch of this," DeFaria said. "We're not going after the big numbers."

Neither businesses nor residential customers will be able to presubscribe their telephone lines to Connect 'N Save. Instead, everyone will have to use individual credit card accounts, DeFaria said. Billing will appear on customers' credit card statements, not phone bills from AT&T.

AT&T has not planned a national service rollout, DeFaria said. ■

Price point derby

AT&T will test the following flat-rate prices in its three-city IP telephony market trial:

● **Atlanta**	8.5 cents per minute
● **Boston**	8.0 cents per minute
● **San Francisco**	7.5 cents per minute

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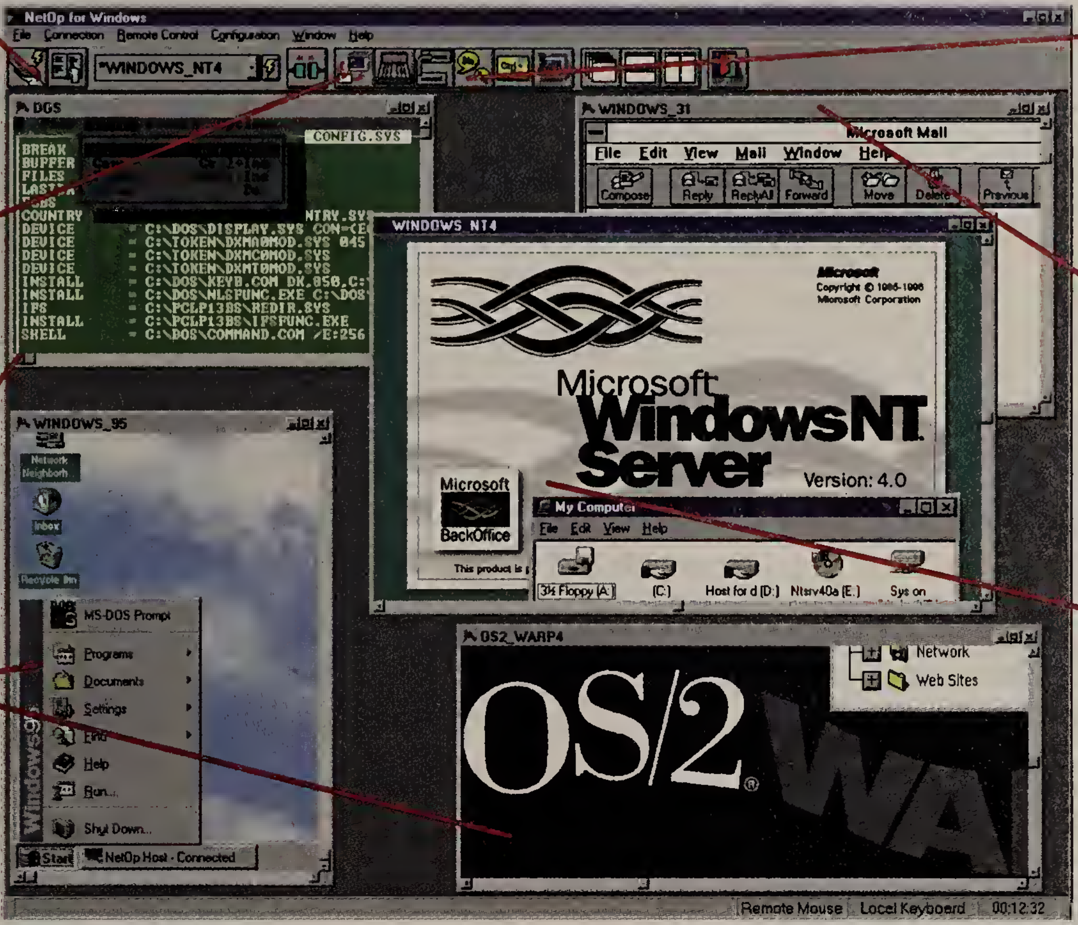

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BREAK
BUFFER
FILES
COUNTRY                                     NTRY.SYS
DEVICE      = C:\DOS\DISPLAY.SYS CON=(E
DEVICE      = C:\TOKEN\DXMA0MOD.SYS 045
DEVICE      = C:\TOKEN\DXMC0MOD.SYS
DEVICE      = C:\TOKEN\DXMT0MOD.SYS
INSTALL     = C:\DOS\KEYB.COM DK,850,C:
INSTALL     = C:\DOS\NLSFUNC.EXE C:\DOS
IFS         = C:\PCLP13BS\REDIR.SYS
INSTALL     = C:\PCLP13BS\IFSFUNC.EXE
SHELL       = C:\DOS\COMMAND.COM /E:256
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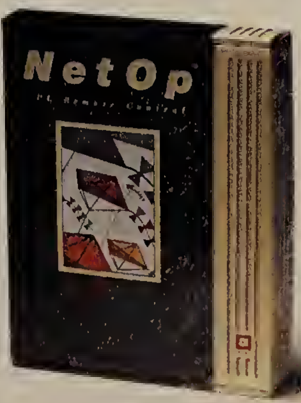

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Briefs

■ **IBM** *has cut the price of its entry-level* **Network Station Series 100 network computer** *(NC) from $649 to $499. IBM claims it is the first major company to price an NC, not including monitor, under $500. IBM also said it will add* **Citrix Systems, Inc.'s** *ICA protocol to its Network Station Series 100 NCs to let the devices access applications running on multiuser Windows NT servers.*

IBM Network Station

© IBM: (800) 426-7080

■ **Allied Telesyn International Corp.** *has announced two* **100M bit/sec switches** *and one 10M bit/sec Ethernet switch for fiber-optic LANs.*

The AT-8208F has eight 100M bit/sec ports, while the AT-8216F supports 16 100M bit/sec ports. The switches can be upgraded with ATM or FDDI uplinks. The devices support IP routing between virtual LANs. The AT-8208F costs $7,699, and the AT-8216F is priced at $14,399. The ATM uplink costs $2,595, while the FDDI connection costs $4,595.

The new Ethernet switch, the AT-3714F, has 12 10M bit/sec ports and one 100Base-FX uplink. It also includes an option slot for a 10/100Base-TX or 100Base-FX uplink. The new offering costs $3,995. The 10/100Base-TX uplink costs $79, and the 100Base-FX uplink is $329.

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■ **Compaq Computer Corp.** *has announced that its* **ProLiant 3000 server** *is now available with up to two 333-MHz Pentium II processors, 3G bytes of memory and 109.2G bytes of internal hot-pluggable storage. The Windows NT server costs $4,499.*

© Compaq: (800) 345-1518

Vendors deliver more bang for Fast Ethernet buck

Sun's trunking technology supported by switch vendors, allows aggregation of 100M bit/sec links.

By Robin Shreier Hohman

If 100M bit/sec isn't enough for you and 1G bit/sec is too much, Fast Ethernet trunking could fit your needs.

Bay Networks, Inc., Cabletron Systems, Inc. and other leading vendors have begun to ship switches that can aggregate up to four 100M bit/sec links into one fat pipe that provides 400M bit/sec of switching capacity in both directions. The fat pipe can be used to link switches to servers or workstations and to connect switches to one another.

While the switch vendors are supporting trunking, its biggest proponent may be Sun Microsystems, Inc., which is among the companies trying to establish a link aggregation standard through the IEEE 802.3ab working group.

The company last fall announced Sun Trunking 1.0, software that enables customers to establish Fast Ethernet trunks between servers outfitted with Sun network interface cards and switches. The software works with Sun's PCI and SBus Quad Fast Ethernet network interface cards. The software also supports server failover, redundancy and load balancing.

When Sun announced Sun Trunking 1.0, the company also cited a handful of switch vendors that planned to work with Sun to support trunking on their switches. The Tolly Group, a Manasquan, N.J., consulting and testing firm, recently put Sun Trunking 1.0 through its paces in a series of switch tests.

The tests showed that switches from Bay, Cisco Systems, Inc., Extreme Networks, Inc., Foundry Networks, Inc., Lucent Technologies, Inc. and Plaintree Systems, Inc. all support the Sun trunking technology. Here's a quick look at the throughput achieved by the switches:

- Bay BayStack 350F-HD — 390.6M bit/sec
- Cisco Catalyst 5505 — 398.5M bit/sec
- Extreme Summit 4 — 406.3M bit/sec
- Foundry FastIron Workgroup Switch — 401.2M bit/sec
- Lucent P550 Cajun Switch — 386.3M bit/sec
- Plaintree WaveSwitch 9200 — 408.9M bit/sec

The Tolly Group noted that each of the throughput numbers is almost twice the theoretical maximum throughput of a single full-duplex Fast Ethernet connection. The testing organization said the numbers probably would have been higher if the tests had involved more powerful computers with more memory. The Tolly Group used low- to mid-range workstations.

The participating vendors will likely offer different degrees of support for the Sun Trunking 1.0 technology. Plaintree, for instance, pointed out that it will let customers assign a Fast Ethernet trunk to ports anywhere on the same switch, not just on one module.

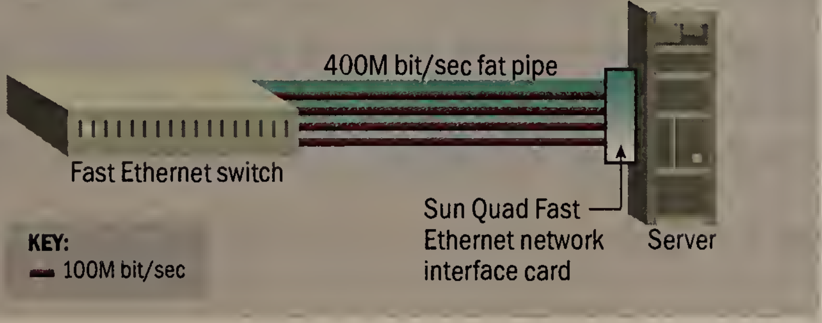
"By doing that, you're protecting against a cable failure, you're protecting against drivers and receivers on either end failing," said Paul Weiss, vice president of marketing for the Newton, Mass., company.

In addition to the vendors that participated in the Tolly Group tests, other vendors plan to support the Sun technology. Xylan Corp., for example, will soon introduce OmniChannel, which will enable customers to support Sun Trunking 1.0 on any Xylan OmniSwitch. 3Com Corp. is among the other switch vendors that support trunking, both among 3Com switches and with servers running Sun Trunking 1.0 software.

Cabletron has its own trunking technology called Smart Trunk, which is available on the company's entire SmartSwitch product line, including the SmartSwitch Router obtained by Cabletron via its YAGO Systems, Inc. acquisition. Cabletron said all of its Smart Trunk products will work with Sun Trunking 1.0 technology, as well. ■

Faster than Fast Ethernet

Vendors are just starting to ship Fast Ethernet switches, bundling up to four 100M bit/sec pipes into one 400M bit/sec connection using Sun Trunking 1.0 technology.



Get more online: 7124

- A Sun white paper and FAQ on trunking
- Information from Cisco on Fast EtherChannel

www.nwfusion.com

Compaq and Digital slash their server prices

Companies lower cost of Pentium machines by up to 20%.

By Marc Songini

PC server vendors are really starting to spoil customers.

Compaq Computer Corp. and Digital Equipment Corp., which Compaq is acquiring, separately have announced server price cuts of up to 20%.

This is the second time this year that Compaq has slashed prices on its servers. The company chopped prices by more than 20% on some models in February.

And Compaq hasn't been alone. Dell Computer Corp., IBM and others have also gotten into the price cutting act.

Prices are falling because, even though demand is great, supply is even greater, said Jonathan Eunice, an analyst with Illuminata, Inc., a Nashua, N.H., consultancy. In addition, customers now are at the point where they expect server prices to free fall alongside PC prices, he said.

Compaq has lowered prices for servers up and down the line. On the low end, the company reduced the price of its one-processor Pentium or Pentium II ProSignia 200 by 9%, to $2,273. The company knocked $2,714 off the price of its high-end ProLiant 7000. The four-processor server now costs $34,024.

Compaq made its biggest price cut on the ProLiant 800, a workgroup server that sports two 200-MHz Pentium Pro processors. The machine now sells for $2,433, down 20%. Compaq trimmed 14% off the price of its higher-end ProLiant 1600 workgroup server, which features two 266-MHz Pentium II processors and now costs $6,050.

Digital restricted price cuts to its low-end Pentium II 1000 and 3000 Digital Server lines.

The entry-level, two-processor Digital Server 1205 is now priced at $1,650, down 20% from $2,040. The company cut 10% off the price of its Digital Server 3205 workgroup machine, which now costs $2,990. ■

There are 2,600,000 IT professionals out there and 14,819,756,871 daily problems to solve.

Obviously, something's got to give.

It's fairly obvious that the role of the IT person has changed considerably in the past few years.

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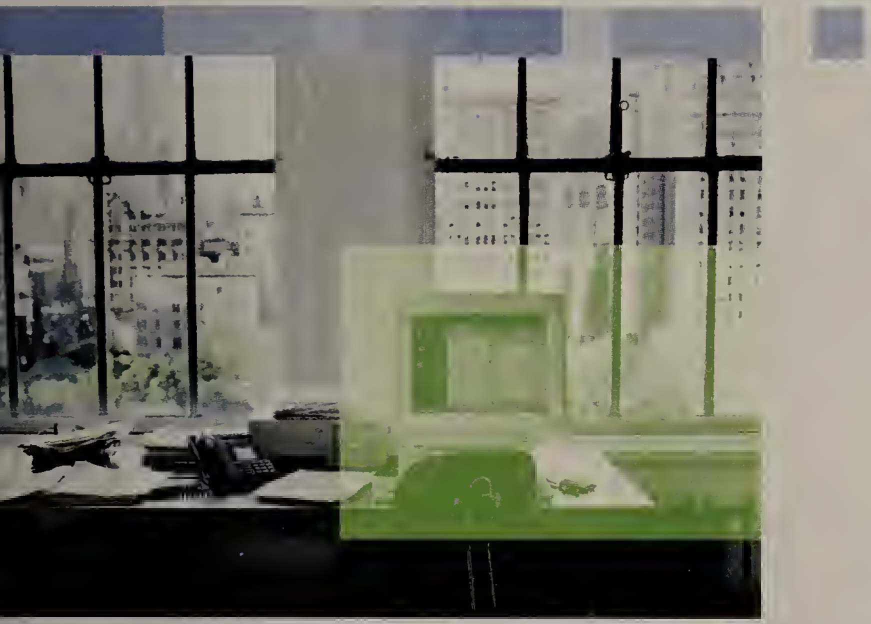

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WIRED WINDOWS

Beware of network hernias

Last week, I wrote about disaster prevention using my own strangulated hernia as an example of a preventable disaster. Thanks to the wonderful folks at Austin's Seton Medical center, my personal disaster recovery is going extremely well. But my disaster was preventable, and so are most of yours.

Some things are already taken care of. We have mirrored hard drives, RAID systems, redundant power supplies and clustered servers. These are "nonstop" solutions, designed to keep a server or network operating when a disaster strikes. But not every server or network deserves or can afford a nonstop solution for every subsystem. For those systems without redundancy, there are still a number of steps you can take to minimize problems.

Most disasters, contrary to belief, do not strike like a bolt out of the blue. Rather, there are ongoing indications that a subsystem is failing.

Here's one example. A user calls your help desk and reports he cannot attach to the network or a server — a logon failure. You ask the user to try again, then change his password (on the chance he's forgotten it) and have him try once more. After this fails, you have him reboot. This time the logon succeeds.

Do you chalk this up to user error? Workstation RAM? A flaky network card? Most likely, you write it off as an anomaly. Lovely word, anomaly. It means "something went wrong, but I haven't the slightest idea what, and I'm not going to track it down."

While the cost of tracking down the exact problem might be too high — especially if it was a workstation operating system bug — it is worth the effort to see if the problem is repeatable and a network failure, rather than a local failure. You can do this by reading the local, server and network error logs for clues.

Dave Kearns

Similarly, you can periodically test disk drives (with server operating system tools or third-party utilities) and monitor their health with error logs. You should also consider purchasing or periodically renting a RAM tester — a hardware device that can thoroughly check out RAM modules and spot the symptoms of incipient failure.

Tip of the week

My favorite tool for keeping a network healthy is COMPAS, from Microtest (www.microtest.com/html/network_diagnostics.html). COMPAS combines the best features of cable testers, protocol analyzers and network diagnostic utilities into a handheld, portable tool. Get one and you'll wonder how you ever got along without it.

Above all, monitor all of the logs provided by your systems and look for minor failures and errors, which are the clues to an upcoming disaster. It's only by knowing the real state of your network's health and acting on symptoms of upcoming failure that you can really prevent disasters before they occur.

Kearns, a former network administrator, is a freelance writer and consultant in Austin, Texas. He can be reached at wired@vquill.com.

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Briefs

Transcend Corp. *last week announced* **Gemini,** *a modem that can bond together two analog phone lines to give users a fatter link to the Internet or any other dial-up location equipped with modems capable of standard channel bonding.*

Transcend's Gemini

The Gemini V.90 56K bit/sec modem compresses data and splits it in accordance with Multilink Point-to-Point Protocol (MLPPP). Gemini works by pumping data down separate phone lines; MLPPP-enabled modems at the other end piece the data back together. Gemini will be available in August for under $200.

© Transcend: (407) 638-4400

Micromuse, Inc. *has unveiled a* **Windows NT version of its Netcool/OMNIbus** *service-level manager. Netcool/OMNIbus is a native Windows NT application that is functionally equivalent to its Unix counterpart. Netcool is intended to be either a primary or failover management system console for associating network events with IT service availability. Netcool/OMNIbus for Windows NT will ship in the third quarter. Pricing for Netcool/OMNIbus starts around $35,000 to $40,000, Micromuse said. The product will ship in the third quarter.*

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Qwest Communications International, Inc. *will beta-test* **Avici Systems, Inc.'s Terabit Switch Router** *(TSR) later this year. The TSR is a backbone router for the Internet. It is designed to scale from 600M bit/sec to multiple terabit/sec to accommodate the geometric growth of the 'Net. It will be generally available in early 1999, Avici said. Qwest will run the TSR through its paces in the fourth quarter. Qwest currently uses Cisco Systems, Inc.'s Gigabit Switch Router in the core of its network.*

Shiva: The comeback kids?

CEO James Zucco wants Shiva to be your VPN company.

It has been a bumpy year for Shiva Corp. since the company decided to break out of the remote access pack and dabble in the carrier market.

But Shiva is returning to its roots. By focusing on products that provide dial-up remote access over the Internet, Shiva hopes to meet the needs of corporations looking for inexpensive ways to tie remote workers and business partners into corporate networks.

In addition, the company renegotiated the deal with Nortel that gave Shiva access to carrier customers.

Shiva CEO James Zucco, who was appointed last October, recently spoke about the company's VPN strategy and the competitive remote assess marketplace with *Network World* Editor in Chief John Gallant and Senior Editor Tim Greene.

How do you convince customers to go the virtual private network route?

How do you make a graceful migration of your appropriate traffic from direct-dial remote access to VPN? How do you get the benefits of both? How do you create a single management environment that allows you to do direct dial and VPN? Fifty percent of remote access traffic is local. VPNs don't add complexity to the local remote access call. With the growth of telecommuting, demands are high. We also have known for some time that the public phone network provides enormous redundancy that data networks don't, as Internet outages show. As a fallback, direct-dial remote access will still be an important part of a [chief information officer's] portfolio of technology for some time.

JEFF SCHEID

There is wariness among customers about the whole VPN concept, let alone the actual VPN services. How do you deal with that?

The current solution for remote access is running complex data communications stuff over the phone system. One of the biggest factors in remote access is the long-distance [cost].

In dealing with some of the early [VPN] adopters, they are saying, "OK, we're going to peel off some of our traffic and put it on a remote access VPN." The cost savings let users get a two or three month payback on the technology. Is it a risky strategy for us? It's always risky going into new markets, but you want early market share. And I think there is a compelling set of economics to encourage customers and customers' bosses to say, "Let's try this."

You have a box, but it's also a crowded field. What is your window for optimizing the opportunity?

For the longer term, we fundamentally believe remote access isn't going away. The modem business will continue to be strong. The consolidation of the ISPs over the course of the next couple of years will provide an access field around the world for VPNs. Once that access field, the ISP [points of presence], is in place, you'll need VPN technology on the premise, and we will be there with early market share. It's an important evolution, and we hope to lead it. Part of it is demystifying, part of it is delivering.

What was wrong with the original Nortel deal?

It was complicated. The simplest way to say it is the expenses that were abated were not nearly covering what we were spending on [research and development]. We were spending more than half of our R&D dollars on carrier, but 85% of our business was spent on [remote] access. We had a choice to make whether we serve our customers or serve what were in fact Nortel customers. ■

Cisco prepping router for terabit speeds

By Jim Duffy
Las Vegas

Cisco Systems, Inc.'s new terabit router will be based on the same architecture as the company's existing gigabit routers.

Next year, Cisco will unveil 10G bit/sec OC-192 interfaces for its 12000 series Gigabit Switch Router, which will begin the GSR's metamorphosis into a terabit switching router, said Graeme Fraser, vice president and general manager of Cisco's ISP business unit. Fraser discussed Cisco's plans two weeks ago at the NetWorld+Interop 98.

"We are going to base [terabit routing] on the GSR," Fraser said. "We plan to upgrade [the GSR] next year with 10G bit/sec line cards for 250G bit/sec of overall capacity [and] to scale beyond that for multiterabits."

Terabit routing provides the speed many industry experts say is necessary for scaling the Internet into the next decade and providing a new class of data services to end users. Several router start-ups are designing terabit routers (*NW*, Jan. 19, page 20).

Many of the start-ups, however, say that a crossbar switching fabric — which is at the heart of Cisco's GSR — is inadequate for scaling the Internet to terabit speeds. Specifically, detractors say because crossbar fabrics employ input queuing, they are insufficient for IP multicast applications and are susceptible to head-of-line blocking.

But Cisco claims to have cured the multicast and head-of-line blocking issues of crossbar switches with the GSR. For multicast, the GSR employs a patented output-scheduling algorithm for recognizing and queuing multicast packets, Fraser said. And the GSR employs a technique Cisco calls "virtual output queuing" to alleviate head-of-line blocking.

Another technology that will help scale the GSR is wave-division multiplexing (WDM). WDM is said to provide increased bandwidth efficiency, and eliminates the cost and bandwidth limitations of time-division multiplexing (TDM), which is employed in existing Synchronous Optical Network (SONET) infrastructures. To connect the GSR to WDM gear, Cisco is developing a concatenated OC-48 interface. A concatenated interface statistically multiplexes packets and cells over optical wavelengths and uses all of the 2.5G bit/sec available in an OC-48 trunk. ■

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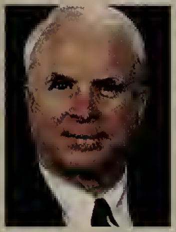
Briefs

■ *The* **Senate Commerce Committee** *is investigating* **"irregularities" in the E-rate program,** *the federal government's subsidy for Internet access and telecom services at schools and libraries. Committee Chairman John McCain (R-Ariz.) demanded a report from the Federal Communications Commission explaining how the FCC detects "inflated costs" in E-rate contracts. According to a letter to the FCC signed by McCain and other committee members, some school districts are allegedly demanding free or discounted laptops, scanners, cameras, teacher training and cable TV, none of which are among the products and services eligible for discount.*


McCain

■ *The* **U.S. Small Business Administration** *(SBA) has asked the Federal Communications Commission to reconsider its decision ending users' right of first refusal for* **toll-free vanity numbers** *beyond the 800 and 888 area codes. The FCC ruled number combinations in the 877 and all subsequent toll-free area codes would be thrown open. This would allow the numbers (800) FLOWERS and (877) FLOWERS, for example, to belong to different companies. The SBA charged that the FCC waited until just before 877 went into effect before making a decision and violated technical requirements for issuing federal regulations.*

■ **Global One,** *the international joint venture led by Sprint Corp., has inaugurated a new node in Buenos Aires for its* **Global IP service.** *The service offers Argentine commercial sites a choice of dedicated or dial-up access to the Internet. Global One previously christenened frame relay service in Argentina via an agreement with Argentina's international carrier.*

Convergent cures hospital's net ills

Carrier offers WAN services, LAN gear, network monitoring and maintenance.

By Tim Greene
Englewood, Colo.

Precedent Health had a major problem: The organization was about $2 million shy of what it needed to set up the voice and computer networks for the new Denver hospital it was planning.

To meet budget, Precedent's IS Director Roy Crookshanks started planning cuts. He abandoned an ATM LAN for 10M bit/sec Ethernet. He eliminated redundant backups. He wiped out full-time monitoring of the network. WAN connections were scaled down.

But with the help of competitive local exchange carrier (CLEC) Convergent Communications, Inc., the hospital opened two weeks ago with the network Crookshanks originally designed. Convergent basically took over construction of the hospital LAN and WAN with no up-front capital investment by Precedent. "We could not have built this network ourselves," Crookshanks said.

Convergent services

Convergent Communications is a competitive local exchange carrier offering local and long-distance voice and data services, but it also:

- Buys your old LAN gear for cash.
- Plans and installs new networks.
- Monitors and maintains the gear.
- Runs a help desk for both LANs and WANs.

Convergent is more than the average CLEC. It will buy a customer's existing LAN for cash, install new gear if necessary, supply WAN links and then manage the whole network.

When Precedent called on Convergent, the hospital had already started installing an Ethernet LAN and had leased hardware. Convergent took over those leases and installed the 25M bit/sec ATM LAN Crookshanks originally wanted.

The hospital is now setting up a frame relay WAN that connects remote clinics to the hospital network. Some of the clinics have been tied in by 56K bit/sec lines, but high-bandwidth applications, such as radiology image transfers, will require upgrades to 1.5M bit/sec links.

By hiring Convergent, Precedent avoided the $5 million up-front cost of setting up its own network and instead pays a $130,000 flat monthly fee, or $1.56 million per year, based on the number of workstations in use, Crookshanks said.

The hospital has 253 network users, and over the next five months that figure is expected to grow to 450. The number of remote offices is expected to increase from 15 to 50 over the next year. Part of Precedent's savings came from eliminating 12 network IS jobs. The work is now done by Convergent employees.

Convergent estimates it can offer support services for 30% to 40% less than companies pay for in-house support. In some of its points of presence, Convergent uses PBXs to do voice switching. Data is routed to the appropriate long-haul carrier.

Convergent offers local and long-distance phone and data services as well as design, installation and continuing care of LANs down to the desktop. The CLEC set up shop in five states with plans to expand nationwide focusing on businesses that have up to 500 desktops.

✆ Convergent: (303) 749-3000

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MCI Systemhouse develops electronic billing service

By David Rohde
Las Vegas

MCI Communications Corp.'s IT services arm has joined forces with an Internet commerce start-up to help banks offer electronic billing and payment to their customers.

MCI Systemhouse announced a partnership with NETdelivery Corp. of Boulder, Colo. NETdelivery's Electronic Delivery Management (EDM) software suite lets partners post consumer bills on secure Web sites. MCI Systemhouse announced the partnership at the recent NetWorld+Interop 98 show here.

Later this year, the two companies expect to roll out an electronic billing service, which will be hosted on the MCI network, to financial institutions.

The competition

MCI and NETdelivery officials expect the service to compete with MSFDC, the electronic billing joint venture between Microsoft Corp. and First Data Corp. announced nearly a year ago. MSFDC is a service that lets companies use the Internet to send bills to and receive payments from consumers.

A number of financial institutions are already piloting MSFDC, including Wells Fargo Bank and KeyBank Corp. Retailers such as J.C. Penney Company, Inc. and Shell Oil Co. have also signed up to test MSFDC.

MCI and NETdelivery officials did not give the names of banks scheduled to pilot their service.

"A lot of banks are going to pilot with us because they don't want to give up control to Microsoft," said Scott Andersen, operating executive for MCI Systemhouse's Commercial Industries Sector. ■

QUICK TAKE: WIRELESS SERVICES

What are you paying for wireless services?

In a recent study, The Yankee Group broke down the costs for buying wireless services per city. The consultancy found the worldwide wireless average cost to be 32 cents per minute.

Least expensive (Per minute)	Most expensive (Per minute)
$.08 Seoul, Korea	**$.69** Moscow
$.13 Islamabad, Pakistan	**$.57** Berlin
$.13 Santiago, Chile	**$.51** Beijing, China
$.16 Sydney, Australia	**$.48** Auckland, New Zealand
$.18 Chicago	**$.47** Tokyo
$.18 Rome	**$.46** Brussels, Belgium
$.18 Toronto	**$.45** New York
$.19 New Delhi, India	**$.45** Panama City, Panama
$.19 Taipei, Taiwan	**$.43** Amsterdam
$.20 London and Copenhagen, Denmark	**$.42** Sao Paulo, Brazil and Sofia, Bulgaria

EYE ON THE CARRIERS

Front group accusations go public

As the stakes grow ever higher in the telecom industry wars, carriers are no longer hesitating to tell regulators when their opponents aren't playing fair.

For some time, the regional Bell operating companies and the long-distance carriers have engaged in the questionable practice of funding "consumer groups" to argue their cases. The difference now is each camp is tattling on the other.

On Feb. 27, the Alliance for Public Technology (APT), which labels itself a grass-roots coalition of individuals and nonprofits promoting universal and affordable access to public networks, gave Federal Communications Commission Chairman William Kennard an award for his "pioneering efforts in telecommunications and consumer access."

The timing was no coincidence. Just nine days earlier, APT had filed a special petition with the FCC under Section 706 of the Telecommunications Act of 1996. The section requires the FCC to remove barriers to the deployment of broadband public data networks or have a plan to do so by August 1998 (*NW*, April 6, page 25).

In its petition, APT proposed that a good use of Section 706 would be to give RBOCs special authority to enter the long-distance market for broadband services even before they won general long-distance approval. The idea is the RBOCs could become Internet backbone providers and ease congestion problems.

Here's what the petition did not state: Though APT does have several hundred members who pay a nominal fee, APT officials have conceded to *Network World* that a majority of their operational funding comes from the RBOCs and GTE Corp. (*NW*, Jan. 26, page 1).

Now, the APT has often filed comments in FCC proceedings without anyone making a big deal out of it. But Section 706 has the potential to get the RBOCs into the long-distance data business without the usual rigmarole of meeting a local competition checklist and providing wholesale services to competitors.

David Rohde

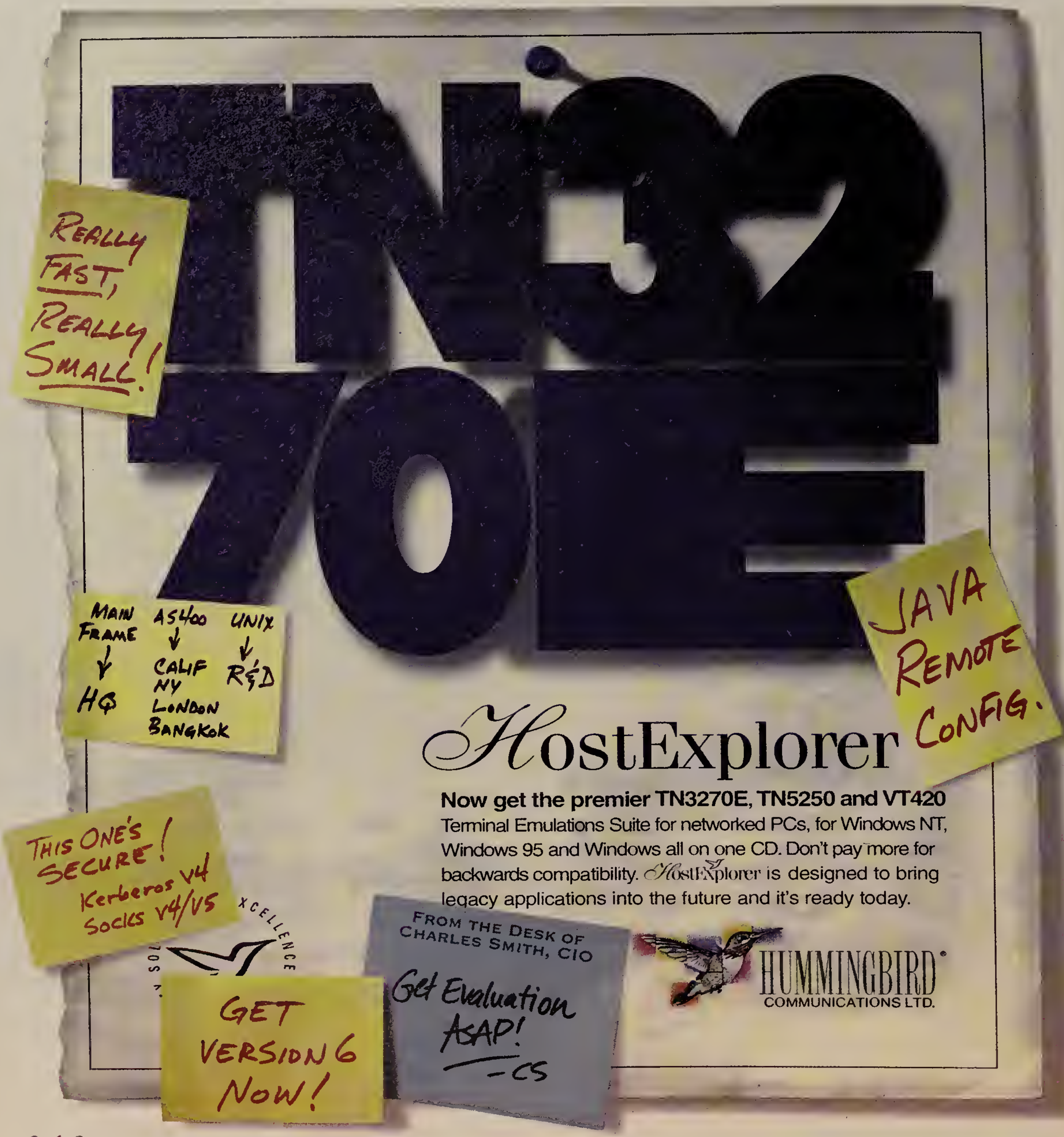
So this time the long-distance carriers took the gloves off. In its April 13 comments on the APT petition, WorldCom, Inc. charged "APT is not the unaffiliated, grass-roots-based public interest group that it purports to be." WorldCom went on to reveal how the RBOCs fund APT and labeled the petition a "far-reaching attempt to rewrite the Telecommunications Act of 1996 into a blank tablet [for its] financial backers."

APT General Counsel Maureen Lewis defended the group's advocacy. She conceded APT's legal filings don't reveal its funding. But she noted that APT's newsletter now reveals APT's "sponsors" to be several local phone companies plus the U.S. Telephone Association, their trade association.

It would be too bad if the dispute over who's zooming who in the regulatory game got so heated that everyone forgot what they were arguing about in the first place: more bandwidth for less money from whoever can provide it. But WorldCom has every right to reveal the money trail behind an FCC petition. And if the RBOCs think there's merit in giving them special broadband data authority, they should try to win it fair and square.

Rohde is Network World's *senior editor of Carriers & ISPs. He can be reached at david_rohde@nww.com.*

To an IT manager, this is a pin-up.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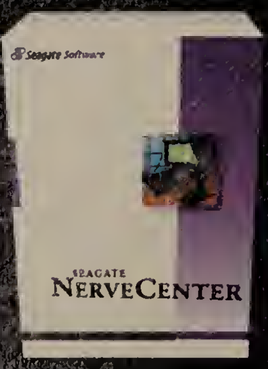

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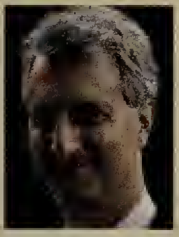
Ira Magaziner

■ *The private sector must lead the effort to set* **Internet public policy,** *according to* **White House Internet advisor Ira Magaziner.** *In a speech to computer professionals in Washington, D.C. last week, Magaziner said the federal government is ill-equipped to lead Internet policy efforts because it moves too slowly to keep up with the rapidly changing technology.*

He also said too few politicians and policy makers in Washington truly understand the Internet and its impact on the economy. Magaziner heads a government panel that is reviewing proposals to revamp the Internet's domain naming policy.

■ **Keyfile Corp.** *of Nashua, N.H., this week will unveil two versions of its flagship* **document management** *software: Keyfile 4.0 and Keyfile for Microsoft Corp.'s Internet Information Server (IIS). Keyfile 4.0 runs on Windows 95 and NT, and includes an API kit for customization and a hands-off installation process. It costs $7,995 per server and $795 per client.*

Keyfile for IIS lets customers access and work with documents using Microsoft's Internet Explorer or Netscape Communications Corp.'s Navigator. It is priced at $4,995 per server, plus $495 per client access license.

✆ Keyfile: (603) 883-3800

■ **Dover Pacific Computing, Inc.,** *of San Diego, has announced a* **call center** *and shipping fulfillment application. Available for Windows NT and Unix, Orders of Magnitude costs $50,000 for a version that handles direct marketing analysis and another $50,000 for Web-based transactions.*

✆ Dover Pacific Computing: (619) 450-4800

HP's e-commerce strategy keys in on QoS

By James Niccolai
San Francisco

Hewlett-Packard Co. last week unveiled a new electronic commerce strategy aimed at letting businesses allocate more system resources to their most important customers and applications.

Outlining HP's so-called Web Quality of Service (QoS) strategy at a press conference here, HP executives said Internet users demand a predictable level of service from Web sites before they will plunge into electronic commerce. "In order to provide a good customer experience, you've got to have a predictable service," said Nigel Ball, general manager of HP's Internet and Applications Systems Division.

Web QoS consists of hardware, middleware and software products that allow companies and service providers to give functions such as online banking and sales priority over activities such as Web browsing during times of peak activity, Ball said.

The technologies also allow businesses to identify their most important customers — by using cookies, IP addresses and other means — and give those users priority access to server resources. Customers in a queue will have the consolation of an onscreen message that tells them how long it will take to get access to a site, company officials said.

The first product based on Web QoS technologies will be HP ServiceControl, which the company plans to ship June 1 for its HP 9000 Enterprise servers and HP-UX Unix operating system. The product includes Admission Control, a policy-based system for prioritizing and managing the workload on a server, and Persistant Connections, which is designed to prevent server overload by limiting access to high-priority users, HP said.

In August, the company plans to offer a complete server platform called HP Domain Commerce, which will include HP ServiceControl bundled with a handful of the most essential electronic commerce tools and applications, officials said.

These include a tool for managing electronic commerce applications centrally from a Web browser; payment software from HP's wholly owned subsidiary, Verifone; and HP's OpenPix software for viewing, sharing and printing high-bandwidth images over the Internet.

HP Domain Commerce was designed to work well with electronic applications from partners BroadVision, Inc., iCat Corp., Intershop Communications, Inc. and Open Market, Inc.

HP's initial QoS offerings were developed for its HP-UX version of Unix. The company plans to port HP Domain Commerce to Windows NT and possibly to other versions of Unix in the future, although no concrete plans for other Unix systems have been made, Ball said.

HP ServiceControl is priced at $800 per CPU, while HP Domain Commerce will cost $3,995, HP said.

The company also announced ongoing work with Cisco Systems, Inc. to enhance HP's QoS offerings. HP ServiceControl includes a technology that improves load balancing using Cisco's LocalDirector. Also, the companies are working together to more tightly integrate Cisco's CiscoAssure Policy Networking with HP's QoS technologies, Cisco officials said.

HP hopes its Web QoS strategy will enable it to compete better against system vendors IBM and Sun Microsystems, Inc., Ball said. In one of several jibes at IBM, Ball criticized the company for trying to decrease customer wait times by "throwing more hardware at the problem," rather than making better use of available resources.

World Cup debut

HP's Web QoS will receive a public trial over the next few months during the 1998 World Cup Football tournament. HP is the IT hardware and maintenance supplier for the event, and a component of Web QoS that gives priority to users making online transactions will be used on the World Cup's online store, officials said.

For more information, HP can be contacted at (650) 857-1501.

Niccolai is a correspondent with IDG News Service's San Francisco bureau.

HP puts money on electronic commerce table

Hewlett-Packard last week rolled out a new electronic-commerce strategy, dubbed Web Quality of Service, which includes the following:

- Peak-usage management, a feature that prioritizes requests to keep the system from being overloaded.
- User classes, a way to offer higher levels of service to premier customers.
- Service classes, a way to prioritize types of services such as transactions vs. browsing.
- Joint development with Cisco to bring Web QoS features to Cisco hardware.

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Sterling crafts Year 2000 fix for EDI

Company tackles EDI Year 20000 problems for customers and their partners.

By Ellen Messmer
Columbus, Ohio

Sterling Commerce, Inc. has detailed a multipronged approach to fixing the Year 2000 problem its corporate customers face with older electronic data interchange software.

Only the very latest 4010 version of the ANSI EDI standard, finalized last December, has an 8-byte data field to properly process the year 2000 date. Older EDI software uses a 6-byte field that can't process the year 2000 date and those beyond, according to Sterling Product Manager Carole Comscock.

As a remedy to the problem, Sterling will provide a free version of 4010-compliant software to its current EDI corporate customers. Sterling EDI customers Cummins Engine Co., Toys 'R Us, Inc. and JCPenney Company, Inc. are large EDI users that have started the trek to Year 2000 compliance.

Because Sterling EDI customers have trading partners that use competing EDI software, Sterling also is offering to set up a Year 2000 conversion service in its value-added network to convert any incoming Year 2000-challenged messages into the 4010 format.

Sterling plans to charge a one-time fee for the conversion service for its largest EDI customers. The fee is expected to range from $1,000 to $3,000.

Sterling also will help large EDI customers get their trading partners year 2000-ready. "We're keeping a database of all Year 2000-certified customers," Comscock said.

There is also the option for trading partners to simply agree that "00" means the year 2000. The retail and grocery industries, for example, might view this as an interim course of action, Comscock said. The health care industry, however, is less likely to follow suit because it needs a four-digit year field to represent a patient's date of birth. ■

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'NET INSIDER

Security on the horizon

As predicted in a front-page story in the May 4th issue of *Network World,* virtual private networks (VPN) were all the rage at NetWorld+Interop 98 in Las Vegas. VPNs were not the only hot topic by far, but they did seem to be everywhere you looked.

The show seemed a bit subdued compared with last year's (although any show in Las Vegas is on an entirely different plane than shows elsewhere). The magicians trying to entice you to listen to a spiel about Ethernet switches were here once again, but there seemed to be fewer of them and, wonder of wonders, there were even some technically competent people in some of the booths.

In addition to VPNs, the Gigabit Ethernet vendors were out in force with 20 or more booths in addition to the big Gigabit Alliance booth. There were many other interesting products, such as Manage.Com's Java-based front-line management station.

But VPNs seemed to me to be the show focus this year, just like Gigabit Ethernet was last year, IP Switching the year before and ATM before that. I just hope Gigabit Ethernet and VPNs do not take the same path to success that the other hot topics did.

One problem with all of the attention on VPNs is there is no one consistent thing that the VPN proponents are talking about.

Some vendors are talking about the connections between corporate firewalls when they speak of VPNs. Others are referring to the connections inside a WAN that an ISP might set up to do traffic engineering or to help facilitate the delivery of consistent quality of service (QoS). Others mean the IP tunnels that can be created between an on-the-road employee dialing into a local ISP and the home office. And a few vendors seem to think any encrypted point-to-point link qualifies as a VPN.

Scott Bradner

All of the above are valid definitions of what a VPN might be. But with all of the differing assumptions about VPNs, it is a good idea for users considering the purchase of VPN services or equipment to be sure that their own and the vendors' assumptions about the technology are in line.

One thing that most definitions of the technology have in common is that a VPN includes encrypted point-to-point tunnels. Encouragingly, most of the vendors I saw said they supported IP Security. IPSec is the IETF technology that supports encrypted tunnels along with management of the cryptographic keys. IPSec is in the final stages of being approved as a proposed standard.

In spite of the fact that IPSec is not yet approved, eight IPSec software vendors have already demonstrated interoperability between their products, and many more companies have announced products.

It's a good sign that most of the VPN vendors say they already support IPSec or will in the future. This means there is a reasonable chance that many of the VPN products will interoperate. This, of course, is the purpose of standards.

Disclaimer: Even though Harvard sets its own standards, its products interoperate. The above are my own observations.

Bradner is a consultant with Harvard University's University Information Systems. He can be reached at sob@harvard.edu.

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SPECIAL FOCUS

Productivity suites

Making Webmasters of us all

As intranets continue to proliferate, experts say many are falling prey to the so-called Dead Web Syndrome, symptomized by stale, lackluster content and broken hyperlinks that only serve to keep visitors away. One important reason for this syndrome is that too few workers are pitching in to help keep their corporate sites current, lively and vital.

Why the dearth?

The most natural would-be content developers — bosses, middle managers, knowledge workers and secretaries — do not possess the skills necessary to funnel information from their PCs to an intranet Web server. They need a Webmaster's help. However, with today's estimated average ratio of 50 content contributors to one Webmaster, pushing everything through that central IT clearinghouse can create a bottleneck capable of choking even the best-intended intranet.

A recent survey of major business customers conducted by Microsoft Corp. shows that 82% of intranets have suffered from the Dead Web Syndrome.

The good news is that help appears to be on the way.

Natural content creators may not know how to write HTML tags, but they can generally handle the word processors, spreadsheets and presentation applications already found in the two dominant office productivity suites, Microsoft Office and Lotus Development Corp.'s SmartSuite. Mindful of these realities, Microsoft and Lotus are striving to convert their suites into de facto Web publishing tools that will allow companies to disperse the intranet-building load from scarce, overburdened Webmasters out to departments and workgroups.

"Instead of an IT-hosted, IT-created, top-down intranet, what you're seeing at the group level is an end user creating an intranet to help share information between users," says Andrew Dixon, an Office product manager at Microsoft. "That's not part of their job, that's not part of their training. But they just need to solve this problem."

Office and SmartSuite users are already able to save text and spreadsheet documents directly into HTML without any complex conversion process. However, it's the next step — getting that stuff posted to the Web — that continues to call for Webmaster intervention . . . at least for now.

Fortunately, the next version of SmartSuite will include a new application called FastSite that Lotus and its beta customers believe will go a long way toward bolstering the ranks of content producers who are also capable of direct Web publishing. FastSite allows a nontechnical SmartSuite

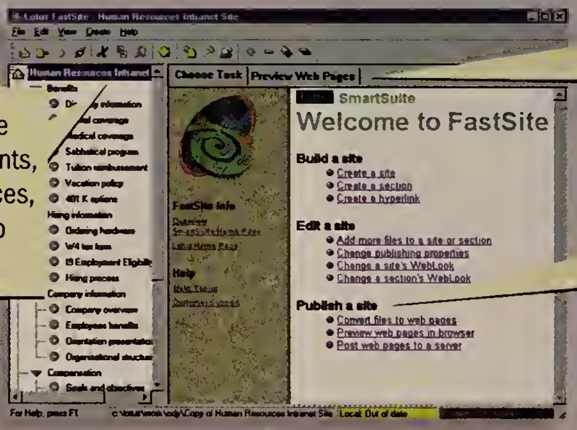
By Paul McNamara

user to edit and publish directly to a simple intranet site without knowing HTML or having to use a more complex tool such as NetObjects Fusion from NetObjects, Inc. or Microsoft's FrontPage.

"We have folks in larger corporations who are [looking at] this with minisites in mind," says Heidi Votaw, a SmartSuite product manager. "For example, maybe a [human resources] group might push all their policies and procedures into a mini Web site so that they can do document sharing and make sure that the information is up to date and available. You could have a finance [site] and a sales and marketing site."

COMING IN LOTUS' NEXT SMARTSUITE

When the Millennium Edition of Lotus' SmartSuite ships this summer it will include a new Web publishing application called FastSite.



Lotus envisions FastSite appealing to departments, such as human resources, that may want to set up mini Web sites.

FastSite will allow SmartSuite users to see pages exactly as they will appear on the Web.

Users will not only be able to save documents to HTML but also publish them directly to an intranet.

According to one beta tester, Micheline Long, a computer consultant in Palmdale, Calif., FastSite "is fabulous [and] just what people need" to inject new life into their intranets. "You can take documents that are already created elsewhere [and] just slam them together in a couple of easy steps," Long says. The result, she adds, is "a Web site that's creative and functional and profitable."

FastSite, however, is not intended to take the place of more powerful site-design tools. "People who are using NetObjects Fusion to do the layout and the content are probably going to keep using it," says another beta tester, John Head, technical director of Artron Products, Inc. in Carol Stream, Ill. "This product is targeted at anybody who is not a developer."

Head sees FastSite putting responsibility for intranet content in the hands of those who are best suited to the task. "The customers will love it because they have control; they're not handing [a Webmaster] all these pieces of paper," he says. "They want to administer the content themselves, and this really allows them to do that."

Long believes FastSite will be popular among customers who have so far shied away from getting onto the Web for fear of not being able to handle the technology.

"I have people who come to me and say, 'I really have to do a Web site, but I don't know how,' " Long says. "Well, they can do it now."

Actually, FastSite won't be available until the next version of SmartSuite, called the Millennium Edition, ships this summer.

Meanwhile, Microsoft intends to provide that same ease of publishing in the next version of Office, due by year-end.

"We're making a big investment to elevate HTML to the same level of our native file formats, such as .DOC and .XLS files," Microsoft's Dixon says. "This will let anyone on any platform read business documents created by Office, including documents with rich formatting elements such as charts and drawing objects."

Office will use the Extensible Markup Language to enable "round-tripping," Dixon adds, which means a user can save an Office document in HTML and reopen it in Office without losing data or formatting.

In addition, Office users will be able to create, edit, save and retrieve documents on their intranet without Webmaster assistance.

"This capability will be so tightly integrated into the standard document open and save practices of today that publishing to the Web will become a simple part of people's regular work habits," Dixon says.

Having more workers involved in maintaining a corporate intranet may be a good thing, but it is not without potential pitfalls, says one expert.

"If you've got potentially hundreds or thousands of content developers and this is an extranet environment that provides access to the outside world, it could pose some security concerns [about the] posting of competitive information or sales forecasts," says Michael Osterman, an analyst with Creative Networks, Inc. of Palo Alto, Calif. "There could also be some network security risks."

However, these risks pale in comparison with the potential benefits, according to Osterman.

"I would anticipate that the vast majority of intranet content is going to be end-user developed within the next couple of years," he says. ■

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Happy Birthday Ethernet!

Ethernet, with all talk about gigabit this and even terabit that, has never looked younger. But we old timers know that this venerable LAN technology has been kicking around for a while. A long while. In fact, Ethernet turns 25 years old Friday.

That's right. On May 22, 1973, in Palo Alto, Bob Metcalfe sat down in front of an IBM Selectric typewriter and cranked out a 13-page description of Ethernet. Metcalfe believes this document represents the very invention of the technology.

In 1979 he founded 3Com Corp. to commercialize his invention. Along the way, he had some significant help in refining the technology, including assistance from some of the industry heavyweights we queried for the story on the opposite page.

Metcalfe is currently vice president of technology for International Data Group, the parent company of *Network World.* He's also a weekly columnist for *NW's* sister publication, *InfoWorld,* and sits on *NW's* board of directors.

We caught up with Metcalfe to get his thoughts on Ethernet as it turns 25.

Where do you see Ethernet going from here? Is there a limit to how far the technology can go, speed-wise?

We're at Gigabit Ethernet now, right? There's clearly work to follow that — it's already going on in places. I suppose we'll eventually get to Terabit Ethernet — that's an easy prediction.

Ethernet used to mean CSMA/CD LAN. Now it means something different. Ethernet is sort of a name for a cadre of companies that over almost 20 years has learned how to build a series of businesses based on standards. So that's what Ethernet means — it means that cadre of companies. It's Ethernet in a much stronger, new sense. And it's one of the reasons why Gigabit Ethernet has been kicking ATM's butt recently — because the ATM people don't know how to operate this way.

You mean cooperating and launching standards and such?

Yeah, the ATM people just don't know how to do it. We saw it with ISDN, which was sort of a poor implementation, weakly standardized, slowly deployed, if at all, and then overcharged for, without any competition. And ATM sort of comes out of that [same group], which doesn't really know how to make standards, doesn't know how to migrate — it doesn't know how to compete, that's probably its greatest weakness. That would be a systemic explanation for why Gigabit Ethernet has been kicking ATM's butt.

What do you see as the key challenges facing Ethernet going forward?

Getting into the home. In order for Ethernet to get to residential in any big way, just as we saw with business, a LAN has to develop first because most of the traffic is LAN traffic and a small fraction leaks out into the WAN. So a big challenge is for Ethernet to evolve on the low end — [to become] cheap and easy to use.

Will Ethernet have a 50th birthday, or will it be just a memory by the year 2023?

I predicted that 2003 would be the last year in which a new Ethernet product would be announced. But I made that prediction based on the 10M bit/sec limit. That was before I saw, as others saw, that you could speed it up. That's been going on steadily. And then when you go switched and eliminate collisions entirely, the sky's the limit.

So you're saying it will have a 50th birthday?

Absolutely. I've changed my mind. And I hope to attend the party. Wouldn't that be nice?

What were your original expectations for Ethernet?

The immediate problem was connecting all those new PCs we were building at Parc [Xerox Corp.'s Palo Alto Research Center] to the laser printer we were building. I was given the job of connecting them together.

That's all you had in mind at that time?

Yeah, the idea of Ethernet as a standard did not occur until '79, six years later. It was an idea that Gordon Bell at [Digital Equipment Corp.] and I had at a meeting in his office at DEC in February of '79. He wanted me to devise another LAN that DEC could use that wouldn't run afoul of Xerox's patents. And we had the idea, "Hey, instead of doing all that, why don't we just write a letter to Xerox and propose we work together to make a standard?" And then it began to look big, so that by June, after I brought DEC, Intel and Xerox together, I was convinced there would be an Ethernet-compatible marketplace, and that 3Com should be formed to serve it. So it looked big then, in '79, not back in '73 when it was invented — May 22, 1973.

What has most surprised you about the evolution of Ethernet?

Other than the fact that it passed 100 million connections a long time ago? Other than the fact that 3Com is now a $7 billion company? Those are two big surprises.

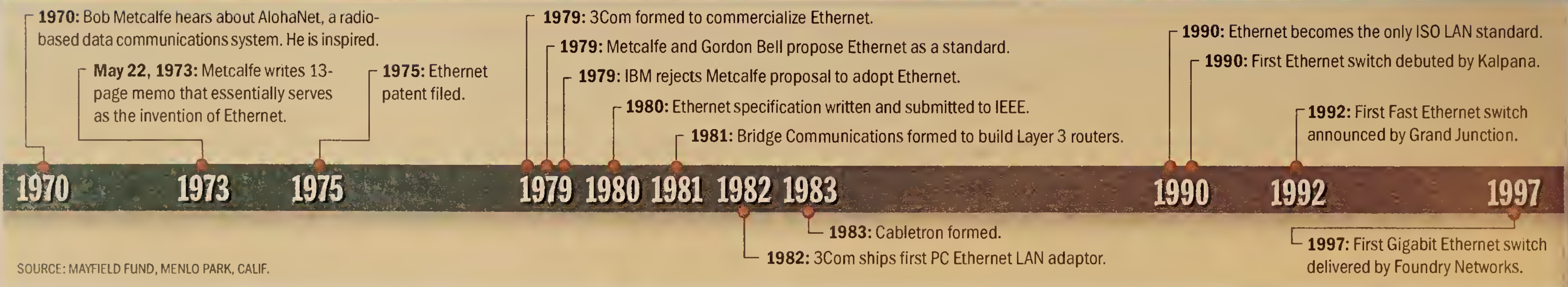
I'm surprised about how ugly the process is of standardizing and competing around a standard. It's intrinsically ugly, and it works beautifully. But you have to have a stomach for street fighting. That was kind of a surprise. Innovation is not some artist's conception of innovation. It's really rough and tumble and that's necessary for it to work, and it does work brilliantly. Evidence — Gigabit Ethernet kicking ATM's butt.

You seem to like saying that.

Yeah. I just picked it up in this conversation. I like the ring of it.

— Paul Desmond

GREAT MOMENTS IN ETHERNET HISTORY



1970: Bob Metcalfe hears about AlohaNet, a radio-based data communications system. He is inspired.

May 22, 1973: Metcalfe writes 13-page memo that essentially serves as the invention of Ethernet.

1975: Ethernet patent filed.

1979: 3Com formed to commercialize Ethernet.

1979: Metcalfe and Gordon Bell propose Ethernet as a standard.

1979: IBM rejects Metcalfe proposal to adopt Ethernet.

1980: Ethernet specification written and submitted to IEEE.

1981: Bridge Communications formed to build Layer 3 routers.

1982: 3Com ships first PC Ethernet LAN adaptor.

1983: Cabletron formed.

1990: Ethernet becomes the only ISO LAN standard.

1990: First Ethernet switch debuted by Kalpana.

1992: First Fast Ethernet switch announced by Grand Junction.

1997: First Gigabit Ethernet switch delivered by Foundry Networks.

SOURCE: MAYFIELD FUND, MENLO PARK, CALIF.

Looking forward to the next 25

Bhardwaj

Bradner

Cerf

Cooper

Daines

For more views on where Ethernet is headed, we queried some industry figures who know a thing or two about the topic.

Below are the thoughts of Vinod Bhardwaj, president and CEO of high-speed network start-up ControlNet, Inc. and co-founder of Kalpana, Inc., the company credited with producing the first Ethernet switch; Scott Bradner, a consultant with Harvard University's University Information Systems and *Network World* columnist; Vinton Cerf, senior vice president of Internet architecture and engineering at MCI Communications Corp.; Eric Cooper, CEO of FORE Systems, Inc. — for the view from the ATM side; Bernard Daines, a consultant to 3Com Corp. on its first commercial Ethernet products, co-founder of Fast Ethernet switch maker Grand Junction Networks, and current chairman, president and CEO of Gigabit Ethernet switch vendor Packet Engines, Inc.

Where do you see Ethernet going from here? Is there a limit to how far the technology can go, speed-wise?

CERF The basic design can work beyond gigabits, but the physical size of the network has to shrink to make it so. Beyond tens of gigabits, it is hard to tell whether it will still be useful, except as a very local interconnect method. Of course switched Ethernet may well work fine at higher speeds, since only one device occupies each "spoke," and the switching does what the shared Ethernet did at lower speeds.

BHARDWAJ There is no limit on how far the technology could go. For fiber, we should see 10G bit/sec Ethernet soon. And for copper, although the current limit seems to be 1G bit/sec on four pairs, with improvements in cable and by sheer ingenuity of future creative engineers, it will be possible to exceed the current 250M bit/sec per pair limit. Even higher speeds could be obtained by using more than four pairs in a cable. You could have a flat cable with 24 pairs running at 10G bit/sec.

COOPER It's already a stretch to call Ethernet a "technology." Now it's mainly just a logical specification of address and frame formats. The early technology — of shared media access, collision detection and avoidance and so on — has been made vestigial, if not quite completely irrelevant, with the advent of switch-based, dedicated-access networks.

As the historical baggage of shared access is left behind, there is no technological reason why Ethernet-compatible address and frame formats can't be used on higher and higher speed dedicated links. It's simply gated by improvements in transceiver technology — electrical, optical or what have you.

What do you see as the key challenges facing the technology?

BHARDWAJ For the copper version, it is the limitations of the analog circuitry. A special semiconductor process might be needed just for analog, which could provide higher speed transistors at higher voltages and with better substrate noise isolation. I doubt if the current gigabit standard would work reliably on the installed base of CAT 5 cable and connectors with current state-of-the-art in analog technology.

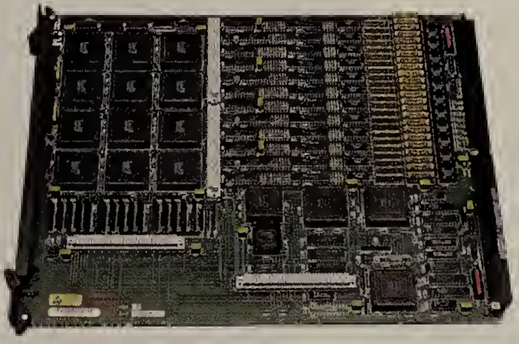
COOPER The Ethernet-compatible frame size of 1500 bytes is a brick-wall impediment to high performance. This is already evident in the Gigabit Ethernet arena, where vendors must resort to proprietary — meaning not Ethernet — larger frames to achieve respectable performance.

Ironically, ATM surmounted this challenge years ago by logically separating the notion of small fixed-size cells from larger variable-size frames and using inexpensive silicon to do the conversion.

CERF Dealing with higher speeds; possibly re-architecting to work in optical mode, with optical switches and transverse filters.

DAINES That we don't trivialize it. Technology has become so pervasive and things seem so easy that nobody questions anything. It'll take work to keep it expanding and growing.

In some ways the reason for Ethernet being so successful over the last few years is there have been challenges. 100VG-AnyLAN was challenging, so people like [Grand Junction], who were doing 100M-bit Ethernet, had to work hard to make it happen and do a good job.



This controller board, *designed around 1988 by Bernard Daines, hangs on his office wall. He says it's the first 10Base-T switch and was used by Nortel to add Ethernet support to its carrier-class telephone switches.*

Will Ethernet have a 50th birthday, or will it be just a memory by the year 2023?

COOPER Due to its ubiquity, Ethernet will survive as a marketing term and perhaps as an emulated compatibility mode supported by the terabit-per-second, combined cell-and-frame, all-switched networks of the year 2023.

BRADNER Just like the person who said, "I do not know what the major programming language will be in the year 2000, but I do know it will be called COBOL," I fully expect that a technology called Ethernet will be a major player in networks of the year 2023. But I do not expect that it will be a CSMA/CD-based technology.

CERF It's lasted 25 years and gone from 3M bit/sec to 1,000M bit/sec in that time. If it can reach terahertz through switching methods, it could reach 1,000,000M bit/sec by 2023, maybe sooner.

DAINES Unless every computer uses teleportation or has ESP built into them by then, yes, I think Ethernet will have a 50th birthday.

BHARDWAJ It depends on what we mean by Ethernet. Ethernet is today full duplex, and that means it is no longer CSMA/CD technology. It is also no longer a shared medium with the advent of switching. So Ethernet will keep on evolving, but it is quite possible that it will be called Ethernet after 50 years even though it will have, in effect, changed from an ape to a human being.

What has most surprised you about the evolution of Ethernet?

DAINES The biggest surprise I had was at Grand Junction when we were working on a [100M bit/sec Ethernet network interface card] that would start selling at about $1,500, which is about what the FDDI ones were. And I made the real bold prediction that within a few years, we'd get our NIC down to about $250 to $295. Look how wrong I was. It's now $29 or $39 for a 100M-bit NIC.

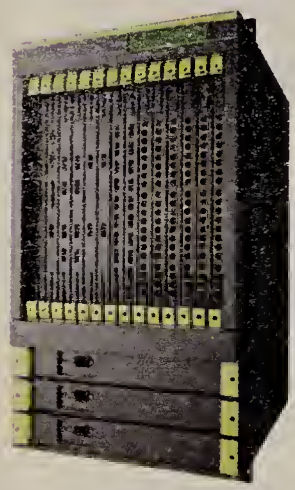
When people get gigabit working in copper cable, there's no reason why the chip that does the gigabit copper Ethernet would cost any more in two or three years than the chip that does 100M bit does now.

BRADNER The level of assumption by others — first token-ring proponents, then ATM proponents — that Ethernet was a has-been inferior technology and would soon fade to nothing.

CERF Its ability to adapt to higher speeds [through] the switched versions.

— Network World *staff*

Gigabit Performance Enterprise Reliability



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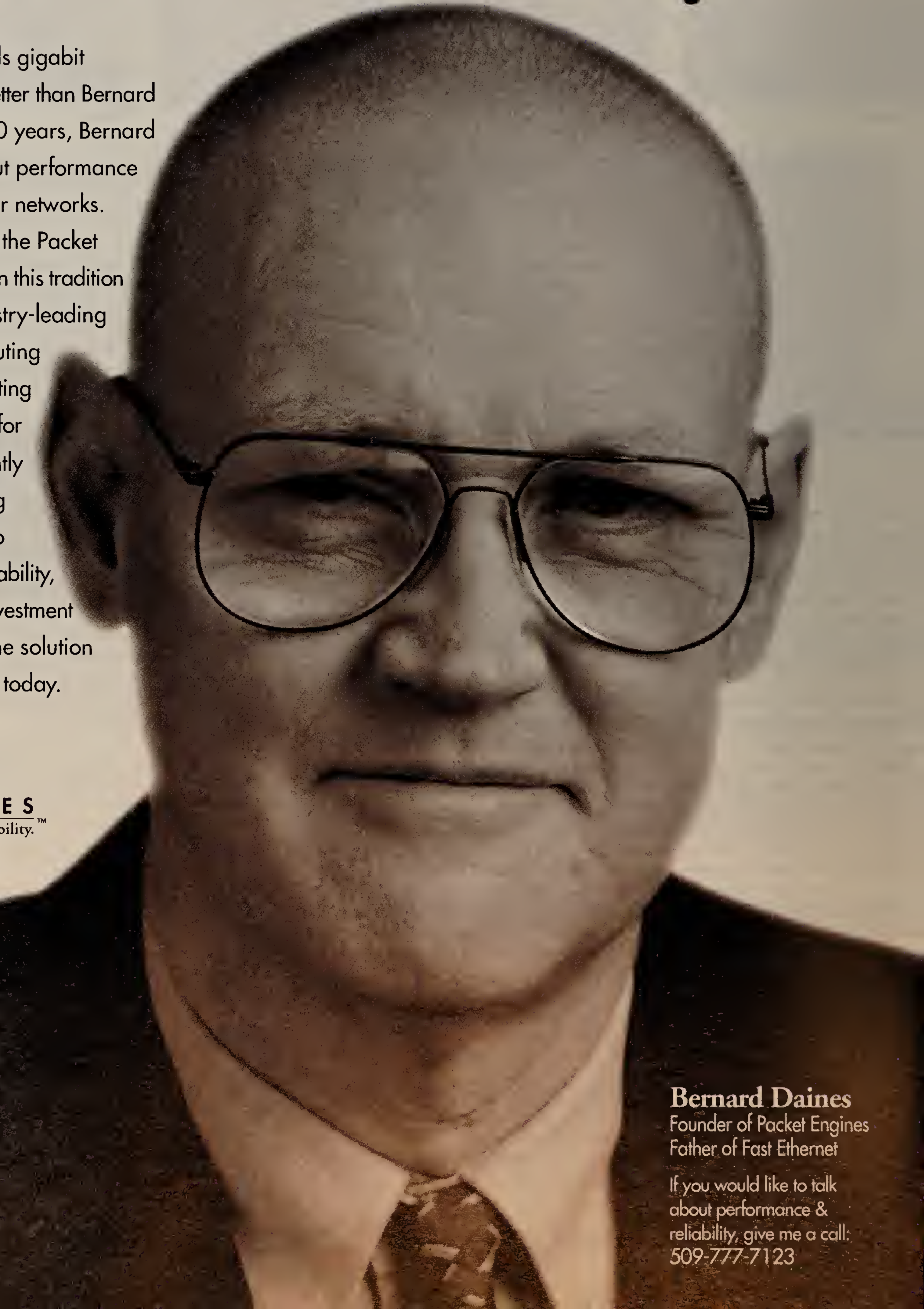

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We are getting ready to connect our network to the Internet using Novell, Inc.'s BorderManager. We have been running TCP/IP in-house for an application running on Unix. What changes do I need to watch for in our network when we install the Internet connection? Do I need to change our IP addressing scheme?

Via the Internet

Make sure you've updated the server running BorderManager with the latest patches for that software and for the accompanying IntranetWare network operating system.

In addition, if you aren't already running Dynamic Host Configuration Protocol (DHCP) to handle your IP addressing management needs, consider implementing it before connecting to the Internet.

You may consider using one of the three reserved IP ranges for private IP addressing to provide security beyond the proxy and filter functions included with BorderManager.

A significant number of routers on the Internet have filters that prevent or block traffic intended for an address in one of these reserved ranges.

Because BorderManager uses a private/public interface configuration for routing traffic to and from a network, the outside world will see traffic by the IP address of the public card in the BorderManager server. This is the case unless you are using Network Address Translation and secondary IP addresses also bound to the public network card.

If you decide to change your IP addressing, you will probably need to go to each workstation and release the currently assigned IP address or reconfigure the IP protocol stack so the workstation can discover its new address.

Avoiding remote access congestion on the 'Net

By Wray West

With nearly every technology, enterprise managers are forced to balance performance against cost. No where has this proven to be truer than in the remote access arena.

Direct dial-up remote access service packages provide predictable performance, but the costs are staggering. On the other hand, remote access virtual private networks (VPN) address cost issues, but enterprise nets can still take a hit on performance — most notably because of congestion on the Internet.

There is relief in sight, however. Several technology strategies can, and should, be employed to retain the compelling cost benefits of VPNs while providing greatly improved performance — even under highly congested Internet conditions.

Factors affecting remote access performance over a VPN include the path through the Internet, congestion on that path and VPN protocol implementation. These factors all play critical roles in the three top performance killers: latency, packet loss and packet expansion.

The path a packet takes through the Internet — based primarily on the number of router hops and the speed of the Internet connection — determines the latency, or round-trip delay. Greater latency slows down interactive applications and protocols that don't effectively manage the number of packets in simultaneous transmission.

Congestion can sometimes increase latency, but more often congestion results in dropped packets. Routers need to deal with packets quickly, either sending or dropping them. Typical packet loss is 2% to 5% during low congestion periods, but can increase to a whopping 20% during periods of peak congestion.

Packet loss has a significant effect on VPN performance. Because many transport protocols will discard all the packets in the window if a single packet is lost, a 20% packet loss rate can amplify to more than 50% during peak congestion periods, resulting in huge VPN performance degradation.

Packet expansion is a side effect of VPN tunnel protocols and encryption. Tunnel protocols add 30 to 50 bytes of information per packet to control the tunnel, resulting in about a 5% increase in latency for short bursts and about 2% overhead in large transfers. This overhead has a relatively minor impact on latency.

On the other hand, encryption implementations can have a staggering impact on performance. Good encryption creates random looking data that cannot be compressed by modems. Unless the VPN software compresses data prior to encryption, encrypted packets must be sent in the expanded form. For e-mail and text data, this action can reduce performance by 40% to 70% compared to a dial-up remote access connection.

Fortunately, there are ways to compensate for the performance impact of the Internet on remote access VPNs. Some strategies and technologies that address lower latency, reduced packet loss and compressing prior to encryption can be implemented today.

An enterprise implementing a VPN remote access package has several tools to improve the connection's performance. The simplest and most obvious is to schedule VPN connections for noncongested hours. Tools that automate and schedule sessions can improve the convenience of this option.

Another option is to carefully select the ISP used for the remote access network to minimize latency and dropped packets. For example, ISPs with a high-capacity frame relay or ATM backbone can minimize latency and dropped packets by reducing the router hops required for a packet.

Some ISP's are taking advantage of their backbone by offering premium service levels at premium prices. But before investing in premium ISP services, enterprise managers should insist on accountable service-level agreements and should remember that a low (0% to 2%) packet loss rate is more significant than latency.

Some current VPN technologies compress data prior to encryption. Alone, these technologies will double the performance of VPN connections by performing the same type of compression that would be done in the host CPU internal modem and in the central tunnel server. Although data compression takes up many CPU cycles, it is not a great load on the client computer. However, at the central site where this processing must be simultaneously performed on all of the terminated connections, special care must be given to the implementation in order to have sufficient CPU power to keep up with the data flow.

Other technical developments will help remote access VPNs recover from dropped packets. For example, by employing selective acknowledgements and retransmissions (that is, by notifying the sender of lost packets and only retransmitting those lost), the effect of lost packets is minimized.

These techniques also allow larger window sizes — meaning more packets are transmitted simultaneously — which keeps the Internet path full of data and reduces the impact of latency. This is another feature that can more than double the performance of the tunnel in a congested environment.

Current VPN remote access networks that do not utilize these advanced technologies may be enjoying the economic benefits of using the Internet as their transmission infrastructure, but they are suffering with less than 25% of the performance they had with their dial-up remote access server environments. That's comparable to exchanging 33.6K bit/sec modems for old 9.6K bit/sec models.

West is chief technology officer of Acton, Mass.-based Indus River Networks. He can be reached at wwest@indusriver.com.

UP CLOSE

Controlling Internet congestion

Congestion can delay data traffic, but more often it results in dropped packets. Typical packet loss is 2% to 5% during low-congestion periods but can increase to 20% during high-congestion periods. Packet loss is a problem because it hurts virtual private network (VPN) performance.

To avoid congestion:

- Schedule VPN connections for noncongested hours. Tools that automate and schedule sessions can improve the convenience of this option.
- Select ISPs with a high-capacity frame relay or ATM backbone that can minimize latency and dropped packets by reducing the router hops required for a packet.
- Employ selective acknowledgements and retransmissions, that is, notify the sender of lost packets and only retransmit the lost packets.
- Compress data prior to encryption.

EDITORIAL insights

An open letter to Bell Atlantic business customers

The news about SBC's planned merger with Ameritech has set off another chorus of complaints about telecommunications reform. Vocal critics — consumer advocates, legislators and industry executives — say the landmark 1996 telecom reform bill has only served to spur consolidation of the industry, rather than the vigorous competition envisioned by the law's champions.

It's hard to say whether the complaint is legitimate or short-sighted. Are these megamergers the bitter fruit of a legislative effort that failed to establish the new regulatory — or deregulatory — structure required to force open the local loop? Or are the deals a natural — even necessary — step as once-compartmentalized companies prepare for the inevitable and crushing competition to come?

I lean toward the latter view. There exists today an uneasy standoff between the major local and long-distance camps that simply can't last. It has the feel of Europe on the eve of the Great War. We await the precipitating event. But in an industry controlled partly by market forces and partly by the heavy, sweaty hand of Uncle Sam, anything could happen. (By the way, the Justice Department ought to be taking a hard look at the mess the feds have made in the telecom market as it weighs legal action against Microsoft.)

But what is noticeably absent in the jingoistic rhetoric about the merits of these mergers is the voice of customers. While economists, lobbyists and pundits expound on this or that theory of market concentration or monopolistic control, we rarely hear from the business customers directly affected by these deals.

Well, let's rectify that situation. As the FCC and the Justice Department prepare to review the SBC/Ameritech deal, I want to hear from Bell Atlantic customers who've seen the impact of a merger up close.

1. Is the service you're getting better than it was before the companies merged? (For example, is it taking less time to get circuits provisioned? Are service personnel more responsive? Can you get your questions answered faster?)
2. Are you paying less for the service you're getting today?
3. Is Bell Atlantic rolling out the new services and billing options you need? In short, is the company innovating?
4. Has the merger made life easier for you as a customer?

Drop me an e-mail or go to the forum we've set up on Fusion to discuss this. I'll package up your comments and send them off to FCC Chairman William Kennard to help him understand what customers think about the merger mania hitting the industry. After all, the customer voice should be the most important one in the debate.

John Gallant, editor in chief jgallant@nww.com

Washington networking • Paul Misener

Proposed SBC/Ameritech merger is not a big deal

Unless you've been asleep for the past couple of weeks, undoubtedly you know that telephone giant SBC Communications has proposed to acquire fellow regional Bell operating company Ameritech in a stock swap valued at about $60 billion (see story, page 1). Yet despite the gushing hype it has received, this latest telecommunications megamerger proposal probably will not affect your network.

The SBC/Ameritech merger would reunite components of the former Bell system that were separated in the early 1980s, when AT&T divested itself of its local telephone holdings. The past two years have seen four RBOCs merge, with Bell Atlantic swallowing NYNEX and SBC absorbing Pacific Telesis.

But the key point of the AT&T divestiture was the separation of local and long-distance service. Having seven RBOCs was not magical, nor will having only four RBOCs be inherently evil. The separation of local and long-distance service would remain intact, and one less RBOC wouldn't reduce nonexistent competition among the companies.

The Telecommunications Act of 1996 does not explicitly preclude such a merger. Although it was designed to promote competition, the telecom act did not require the RBOCs to compete amongst themselves.

Indeed, local phone service competition to date has been provided almost entirely by new companies or by the existing long-distance carriers. And some of the most contentious provisions of the telecom act involve how and when the RBOCs will be allowed to provide long-distance service to customers in their home regions.

In the end, I believe the proposed SBC/Ameritech merger will have little effect on the networking world for three principal reasons.

First, despite high hopes a few years ago that the RBOCs would invade one another's geographic territories and compete head-to-head in local residential phone service, the reality is there is very little competition among the RBOCs and little chance there will be more. And if they're not competing and have no obligation or plans to compete, what difference does it make if they merge?

Second, the networking world is served largely by providers of broadband backbone capacity and local business phone services. These telecom market segments already are (or soon will be) competitive in most regions of the country, so the lack of competition among the RBOCs is not a factor.

If the merger is consummated, the most likely detrimental outcome would be to delay the deployment of residential broadband services. This would be no small loss, to be sure, but would not have direct or immediately harmful effects on corporate networking.

Finally, the titanic SBC/Ameritech deal is by no means unsinkable. Current FCC Chairman William Kennard has asked pointedly whether the latest proposal is "going to create competition, or will it be a non-aggression pact?"

Even if inter-RBOC competition were both plausible and important, the SBC/Ameritech deal is merely a proposal that must be approved by the FCC and a number of other federal and state government agencies, including the U.S. Department of Justice. Because the anticompetitive effects on local residential competition is foremost in the minds of antitrust officials, the proposed deal almost certainly would be blocked on those grounds before it could become a major networking issue.

The bottom line is, even at $60 billion, the proposed merger is not a big deal for your network.

Misener is senior legal advisor and chief of staff to FCC Commissioner Harold Furchtgott-Roth, and former manager of telecommunications and computer technology policy for Intel Corp. He can be reached at pmisener@fcc.gov. The views expressed here do not necessarily represent those of the FCC or any commissioner.

MESSAGE QUEUE

Send letters to nwnews@nww.com or John Gallant, editor in chief, Network World, *161 Worcester Road, Framingham, MA 01701. Please include phone number and address for verification.*

Cisco responds

I want to thank Kevin Tolly for his candid letter expressing his concerns regarding Cisco's token-ring switching strategy ("An open letter to Cisco's CEO," April 20, page 28). Cisco truly values this type o open communication with key industry experts, and I am happy to have the opportunity to address Tolly's concerns.

Cisco is committed to providing indu try-leading products and support for our token-ring customers, as is evident by ou end-to-end token-ring switching and routing solutions. The Tolly Group's ow Token Ring Switching Industry Study ha even recognized Cisco for having the highest performance for token-ring

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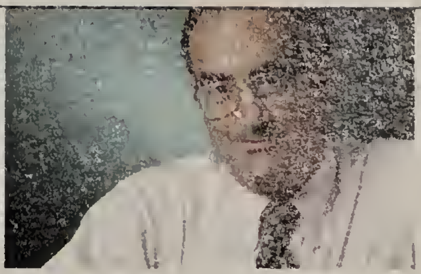

Split your network and sleep well

By now you've probably begun to forget about the Great AT&T Frame Relay Outage of 1998, but its implications and secondary tremors are still reverberating throughout the industry.

AT&T's network was regarded as the gold standard for frame relay. Don't think for a minute that the other kids on the block (MCI and Sprint) weren't checking their own procedures and placing calls to Nortel and Lucent after the crash.

The day of the crash I had lunch with 3Com CEO Eric Benhamou and dinner with Bay Networks Chief Dave House. (I eat for a living.) I had expected both to chortle gleefully as their main competitor, Cisco, whose switches allegedly precipitated the crash, got skewered in public. Such was not the case. Both men knew that there for the grace of God went they.

Here's the problem: The carriers use a pricing model that is based on volume discounts. So network managers face a trade-off between security (splitting traffic among two or three carriers) and economics (getting low prices by using just one carrier). In short, do you want to eat well or sleep well?

The incident that caused the crash will probably never happen again. But it's highly likely that some other problem will occur. Networks are growing too quickly not to crash, and the sort of backup and redundancy expected on voice networks is not yet there on data networks. Nevertheless, data users want both the lower costs available through volume discounts and greater network reliability.

My solution: Build two networks — AT&T Blue and AT&T Red — or two MCI or Sprint data networks. Make the networks mirror each other, but don't interconnect them. Users could stay on the reservation and have alternate carrier support.

The Yankee Group tells our users they need carrier diversity, route diversity and even media diversity. We insist the corporate headquarters be served by at least two different central offices and that no single carrier carry all the users' traffic. Even when customers buy services from resellers or competitive local exchange carriers (CLEC), customers have to know which is the wholesaler because the redundancy plan can be worthless if all their traffic is in the same trench.

Meanwhile, the interexchange carriers (IXC) are pushing a one-network strategy based on transparent LAN service — end-to-end service that connects remote LANs and makes them appear to be part of the same LAN. The IXCs see transparent LANs as a way in to the enterprise market, into which they want to deploy their fledgling ATM networks. The regional Bell operating companies and CLECs also want to offer transparent LAN service.

Will users move toward this one-vendor environment in light of the AT&T frame relay outage?

Before you answer, think about what happens when your entire company runs its internal operation over a transparent LAN service.

Suppose you want to tie all your LANs together with a carrier service that interconnects geographically dispersed LANs at native LAN speeds. Further, suppose you want to do this within the confines of a metropolitan area.

Historically, you would use private lines or FDDI rings. They worked OK for awhile — until companies found they had more than 100 LANs and their carriers had to upgrade. The carriers moved to ATM platforms and placed transparent LAN service under the same umbrella as their ATM service. This makes sense because transparent LAN service is provisioned using the same ATM backbone network used for native ATM service.

But how is transparent LAN service priced? On a per-port basis, by port type and port speed — 10M bit/sec Ethernet, 100M bit/sec Ethernet, 45M bit/sec FDDI, 100M bit/sec FDDI and 4M and 16M bit/sec token ring. Carriers often charge for local access based on mileage as well. They also include some type of service-level agreement in the price and also offer a higher level SLA for a premium.

Transparent LAN service does not usually require any additional hardware investment, so typical pricing for metropolitan-area networks is $1,000 per port for Ethernet, $1,200 per port for token ring, $3,000 per port for 45M bit/sec Fast Ethernet and FDDI, and $6,000 per port for 100M bit/sec Fast Ethernet and FDDI. Depending on the volume of your traffic, you can get a 30% to 40% discount.

The problem is: What's the value of an SLA, even a premium one, if the network fails? Sure, carriers have to pay penalties, but those are insignificant compared with having the CEO question your intelligence for putting all your eggs in one basket.

My advice: Bite the bullet and build redundancy into your network. If your carrier offers two noninterconnected solutions and throws in a volume pricing agreement, take it. Until then, pay the extra price of splitting your network and sleep well.

Anderson is founder and president of The Yankee Group, a Boston-based consultancy. He tries to keep his skepticism from degenerating into rampant cynicism, a battle he appears to be losing. He can be reached at handerson@yankeegroup.com.

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switching in the industry, as well as the greatest functionality and best management for products in its class.

We decided to withdraw from the High-Speed Token Ring Alliance because we did not want to mislead our customers or the industry. The reason we do not have immediate plans to develop solutions based on the proposed High-Speed Token Ring (HSTR) standard is that customer feedback and market research indicate there is very little interest.

Cisco's preference has always been, and always will be, to promote and implement standards in our products. However, our greatest priority is to provide solutions that meet our customers' needs when a corresponding market need exists. Whenever possible, we do this via standards. In the case of HSTR uplinks, standards activities started very late, and it's our understanding that customers are choosing other options.

We agree that high-speed backbones are a critical requirement for token-ring customers — especially when switching to the desktop is deployed. This is why we have implemented both ATM and frame-based backbone technologies for our token-ring switching products. We offer our customers a choice of token-ring and Ethernet LAN Emulation over ATM backbones as well as token-ring and Ethernet [virtual LANs] over 100M bit/sec and 1G bit/sec LAN backbones.

It is my understanding that our customers are very satisfied with these solutions because they provide not only high-speed backbones for token ring, but also the ability to integrate Ethernet technology into their networks should they so choose.

Judy Estrin
Senior vice president of business development and chief technology officer
Cisco Systems, Inc.
San Jose, Calif.

It's already here

Your news brief "Offering first-class IP connections" (April 20, page 8) mentions another validation of class-based queuing (CBQ), this time by the U.S. Department of Energy. The brief goes on to say CBQ "could be ready for commercial implementation as soon as year-end."

In fact, Xedia's Access Point Internet access solution, which uses CBQ to provide policy-driven bandwidth control, has been shipping since September 1997. The product is already being deployed successfully by many ISPs and carriers, such as UUNET Technologies, Digex, Concentric Networks and IDT.

Ashley Stephenson
Chairman
Xedia Corp.
Littleton, Mass.

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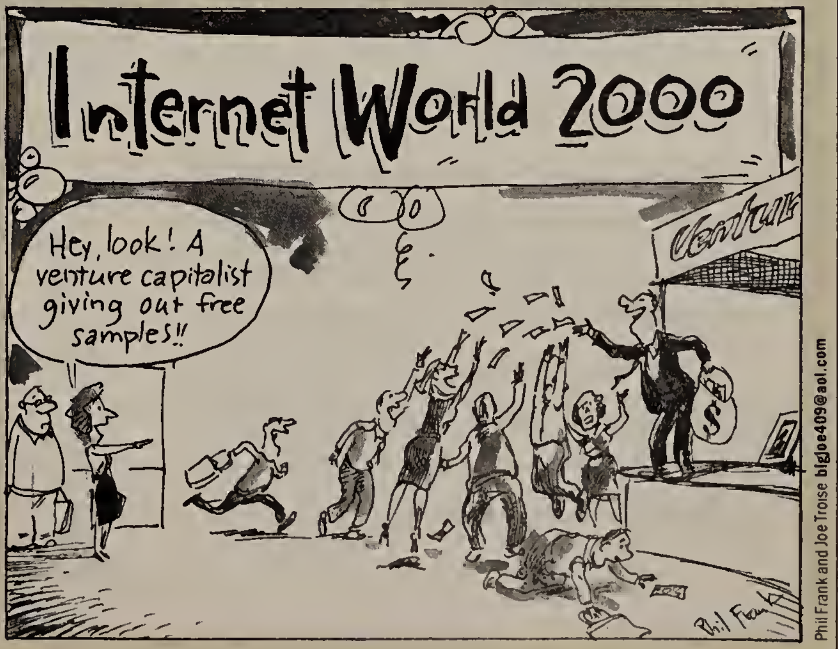
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FEATURE

HOW TO PREPARE AN EFFECTIVE REQUEST FOR PROPOSAL AND FIND THE BEST OUTSOURCING DEAL.

Put it in writing

By Deb Mielke

Are those late nights troubleshooting net connections to Singapore getting you down? What about all those calls from angry corporate salespeople who can't access pricing data from the road? Right now, those network outsourcing vendors that have been beating down your door might be sounding pretty reasonable. After all, you've been trying to hire three new network engineers for months, and the only applicants have been unemployed music majors. Maybe it's time to start thinking about outsourcing your network.

But there's a catch: You dread the laborious task of drafting a request for proposal. This document spells out your requirements for service and equipment and gives prospective vendors the information they need to prepare a bid. Although you may be tempted to just bang out your requirements in a hurry and slap the paperwork together, the time you invest in preparing a solid RFP will save time, money and frustration later.

After all, the RFP is the template for your vendor's contract with you. If the vendor doesn't know what you expect, a long contract negotiation is a certainty. In fact, a less-than-solid RFP could ultimately result in both parties throwing their hands in the air and deciding it's just not worth the effort to do business together.

With that in mind, this guide will walk you through the steps of the RFP process. The advice is based on consulting firm TeleChoice, Inc.'s recent experience outsourcing its network.

Step 1: Take it from the top

Describe your enterprise network and determine your business requirements. Focus on these areas:

- **Applications and business processes the network supports.** Are some services more mission-critical than others? Is your business global, national or regional? Are there critical periods when the network must be particularly stable?
- **Current network service levels.** What are the current goals and performance in such areas as availability, mean time to restore, utilization and latency? How are these metrics gathered and reported? Are there areas in which improvements could be realized through investment in automation?
- **Network topology.** Are there any long-overdue network design changes? Which protocols are supported? Do you plan to add, remove or change locations, protocol support or speed? Have you experienced any major problems with the topology?
- **Technology.** What hardware and software are running on the network? Has any equipment or software been modified to support nonstandard protocols or systems? Do you plan to migrate from routers to switches, 14.4K bit/sec modems to V.90 or ISDN to digital subscriber line (DSL)?
- **Help desk.** Does a single group handle application and network problem calls? What are the help desk's problem resolution responsibilities?
- **Current budget.** How much are you spending on people, hardware, software, telecommunications and net management? Take time to understand budget areas that outsourcing will not reduce or change, such as your salary.
- **Contractual obligations.** Do any contracts have exclusivity clauses? What are the term commitments? This could be important if you end up choosing a carrier or ISP instead of your current service provider.

After you document your enterprise, it's time to think about the portions of the network you can outsource. Most companies that provide network outsourcing have defined capabilities in areas such as service levels, reporting, supported technologies and processes.

Find out what functions your prospective outsourcers can handle by visiting their Web sites. Next, meet with the vendors that appear to be able to meet your needs. If your requirements fall outside the outsourcer's definitions, outsourcing the network or specific components of it may prove difficult, costly or just plain unfeasible.

Pare the list of vendors to a manageable number. How many vendors can you logically work with during the RFP process? Ideally, you should aim to work with three to five vendors.

Step 2: Drafting the RFP

The most important thing to remember when you draft an RFP is "garbage out, garbage back." In other words, if your RFP is comprehensive and honest, the proposals you receive are likely to be comprehensive and honest, too. But outsourcing fails miserably when the customer and vendor are discovering information about each other during the term of the contract. Share as much information as you can with prospective vendors.

The following RFP outline is geared toward a virtual private network (VPN). Your RFP should include all of the following sections to ensure comprehensive and clear responses:

SECTION 1 – GENERAL INFORMATION

- **Executive summary.** Describe your business, market position and revenue. Outline the business and technical reasons you're considering outsourcing.
- **Scope.** Outline the organization of the RFP document.
- **Schedule of events.** Provide a time line for the vendors, including the date of the RFP release, proposal deadline, vendor presentations, contract award and letter of intent. Also list your evaluation procedures and criteria.

SECTION II – PROPOSAL SPECIFICATIONS

- **Introduction.** Clearly define the expected proposal format, to whom and how the proposal should be delivered and how questions regarding the RFP will be handled.
- **Letter of transmittal.** Define the content of each responding vendor's cover letter. Require an officer of the company to sign the letter so you know the vendor's bid has management approval and backing.
- **Content.** Define the section layout of all vendor proposals. Ensuring consistent proposal format and content will save you time evaluating and comparing proposals.

SECTION III – TECHNICAL REQUIREMENTS

As you get to the meat of the RFP, make sure to ask detailed questions to gain a comprehensive understanding of each vendor's service offering.

- **General considerations.** Provide an overview of your current environment. For example, you might cover the number of telecommuters, geographic dispersion, applications, equipment, software, security, network infrastructure, network management, help desk and network service levels.
- **Equipment specifications.** Outline the specifications for the equipment you want the outsourcer to supply or manage. Do you have a particular vendor standard? VPN requirements might include ISDN terminal adapters, DSL equipment, various size routers, remote access concentrators and firewalls.
- **Software specifications.** List the specifications for the

software you want the outsourcer to supply or manage.

- **Installation and project management.** Outline your expectations for installation and project management. How long will the project last? Is the vendor's personnel qualified? Does the vendor have personnel in the geographic regions you require? What is the implementation time frame for new users?
- **Configuration management.** Outline your expectations for configuration management. How often are changes implemented? What are the vendor's "back-out" procedures should a configuration change go wrong? Are configurations stored in more than one location?
- **Performance management.** Outline your performance management requirements and reporting needs. What does your management expect from you? Make sure your requests are reasonable yet meet the needs of your business users.
- **Fault management.** Define the faults for which you expect the vendor to assume responsibility. Defining boundaries of responsibility is critical; otherwise, you and your vendor will be finger-pointing for the life of the contract. Responses to this section will give you a sense of how a vendor manages networks, its network management infrastructure and the number and experience level of its network management personnel.

Go online for more information on creating an RFP and choosing an outsourcer
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- **Security management.** Along with protecting your business from intrusion, security management is key to understanding how the vendor manages the security of your network. For a VPN, make sure you understand the exact level of security provided by encryption, key management, authentication, token cards and the vendor.
- **Asset management.** Because outsourcing implies giving up control of your network, make sure vendors have a plan for managing and tracking your assets. Poor asset management can lead to extended outages.
- **Help desk.** Network outsourcing and help desk support is tricky. Most vendors will only supply Level Two and Level Three network support, which means your help desk needs to take the initial call, diagnose the problem and notify the vendor if the problem originated in the network. But it could be nearly impossible to diagnose whether a remote user is having a network problem vs. an application problem, so you may want to consider outsourcing first-level help desk services, too.
- **Maintenance.** Find out who will actually provide hardware maintenance. Vendors often use a subcontractor for these services, so be sure you understand the service-level agreements (SLA) between the vendor and its subcontractor.

SECTION IV – CONTRACT TERMS AND CONDITIONS

- Provide your company's standard contract terms and conditions and reiterate the service levels you expect the vendor to meet.

SECTION V – APPENDICES

- Include any information the vendor will require to complete its proposal, such as location addresses and telephone numbers, traffic volumes and depreciation schedules.

Step 3: Easy assessments

While you're waiting for vendors to submit their proposals, spend time constructing your evaluation assessment form. (You should have already stated the criteria in the RFP.) In TeleChoice's case, the criteria were cost, reliability, management capabilities and account support.

The easiest and most comprehensive method is to construct two spreadsheets to perform side-by-side comparisons. Use one for quantitative assessments and the other for qualitative assessments (see graphic).

Again, make sure your prospective vendors understand the evaluation criteria. The quantitative assessment spreadsheet should include every section and question you've asked, along with a rating system weighted by your criteria. This matrix is useful for tracking vendors' scores.

A qualitative assessment is equally important. Although subjective, this spreadsheet helps determine your overall feel for vendors' responses. How well do the vendors understand your business? How well do they understand your business requirements? Are the outsourcers flexible? An outsourcing vendor that doesn't understand your needs will prove unsatisfactory over the term of the contract.

HOW THE OUTSOURCERS STACK UP

These sample spreadsheets give you an easy way to compare vendors' proposals and perform quantitative and qualitative assessments.

Quantitative assessment

Question	Weight	Vendor A	Vendor B	Vendor C
1.2.1.1	60	2 x 60 = 120	1 x 60 = 60	3 x 60 = 180
1.2.1.2	30	1 x 30 = 30	1 x 30 = 30	3 x 30 = 90
1.2.1.3	20	2 x 20 = 40	1 x 20 = 20	0 x 20 = 0
1.2.1.4	70	1 x 70 = 70	1 x 70 = 70	3 x 70 = 210
		260	**180**	**480**

Qualitative assessment

Criteria	Weight	Vendor A	Vendor B	Vendor C
Reporting	10	1 x 10 = 10	2 x 10 = 20	3 x 10 = 30
Performance	40	0 x 40 = 0	3 x 40 = 120	2 x 40 = 80
Flexibility	10	1 x 10 = 10	1 x 10 = 10	2 x 10 = 20
Account mgmt.	40	0 x 40 = 0	2 x 40 = 80	1 x 40 = 40
		20	**230**	**170**

0 = No response, 1 = Unsatisfactory or minimal compliance, 2= Satisfactory, 3 = Superior

Step 4: Evaluating vendor bids

In a few weeks, you'll have a stack of proposals to pore through. Grab the stack of proposals from your desk, start reading and complete your assessment forms. It's often best to read the vendor's bid more than once before grading. After grading, wait a day or two and grade the proposal again. You'll be surprised how your grades change.

Compile a list of questions for the vendor as you read each bid. Did the vendor commit to 100% availability on the WAN? Doesn't that seem to be just a bit of an exaggeration? If an answer doesn't make sense, the vendor may have misunderstood the question.

Give vendors a chance to clarify their proposals. You may choose to submit your questions to each vendor and request a written response, or you may choose to have vendors address them at their proposal presentation.

If a vendor is still claiming 100% WAN availability, you should probably place that proposal in the circular file. But if the vendor provides a satisfactory explanation for its claim, include the response in your vendor assessment. As you near the end of the assessment and question phase, you should have a good idea which vendors can capably meet your needs. The vendor presentations should be used as a final qualitative assessment of the candidates.

If none of the proposals meet your network requirements, your RFP efforts still haven't gone to waste. You may choose to only outsource the components of the RFP that vendors can meet. For example, if you often need to change your WAN addressing structure or router configurations with little notice, it might not be feasible to outsource router management. However, you still may want to outsource dial-up remote access to a provider that will handle hardware, software, dial-up access and security.

In any case, the RFP exercise will give you a comprehensive understanding of the network functions that are strategic to your business and can't be outsourced, as well as the tactical functions that make good outsourcing candidates.

Mielke is a senior consultant at TeleChoice in Verona, N.J. She can be reached at dmielke@telechoice.com.

Step 5: Final tasks, final choices

Before you sign the outsourcing contract with your chosen vendor or vendors, address all the Ps and Qs.

- **Review the processes.** Take a final look at your vendor's implementation, escalation, management, ticketing and billing processes. Make sure these meet your needs.
- **Meet the people.** Visit the outsourcer's management center and meet the people who will manage your network. Do they seem overworked? Are they trained to support your specific network configuration?
- **Get it on paper.** Review the contract, paying special attention to SLAs and how the vendor's reporting will indicate compliance.
- **Ask questions.** Keep asking questions until you're satisfied.
- **Look for quality.** Look for quality in the outsourcer's systems, tools and personnel. If the vendor hasn't made the required investment, your service will suffer.

1998 Seminar Dates and Locations:

April 13	Chicago, IL
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April 29	Boston, MA
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Seminar Overview:

Intranets have become synonymous with next generation enterprise networks and the Internet itself is becoming a gigantic, virtual storefront for global commerce. However, with all of their vast potential, Internet and intranet-based information systems have a fundamental flaw. They do not intrinsically support the mega repositories of data located on non-TCP/IP-based systems — in particular the IBM and compatible mainframes and large AS/400 systems that still dominate the business-critical data centers of over 20,000 mid- to large-scale U.S. commercial enterprises.

In such enterprises, over 70% of the vital corporate data resides within the traditional data center as opposed to on the web servers hosting their nascent intranets. The data center systems, though increasingly supporting and integrating TCP/IP, will be running mission-critical SNA applications well past the year 2000. Enterprises that currently have data centers have no choice but to somehow integrate their new intranets and Internet interfaces with the SNA-centric systems, applications, files and databases that reside within the data center.

Taught by SNA-Internet integration expert Anura Gurugé, *Integrating Intranets and Data Centers* will help network managers, planners/designers, data center managers, systems programmers and database managers navigate the intricate issues surrounding the integration of data centers with intranets and the Internet.

If your organization has mainframes or AS/400s and is in the process of implementing or has already implemented an intranet or an Internet gateway to your information repositories — this seminar is for you. *Integrating Intranets and Data Centers* will provide you with incisive, credible and comprehensive information so you can identify, evaluate and implement intranet-to-data center integration solutions in your organization.

6 Key Benefits of Attending:

1. Learn about available technologies for integrating data centers with intranets and the Internet including: browser-based access to SNA; tn3270E/tn5250; Data Link Switching (DLSw); application specific gateways (e.g., CICS Internet Gateway); programmatic access to applications and databases, and middleware.
2. Gain key insights on utilizing Java and JavaBeans technology for data center integration.
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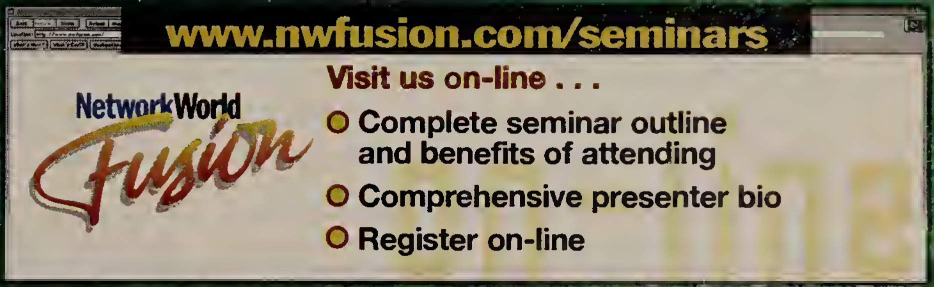

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ENTERPRISE ADMINISTRATOR TOPS THE LIST OF TOOLS FOR MANAGING DISTRIBUTED NT DOMAINS.

Easy domain administration

By Jeff Bankston

One of the key administrative issues with Windows NT Server is domain management. With its multiple levels of domains, NT Server requires you to make a range of planning and management decisions daily.

Assigning limited administrative permissions to select end users, giving them the ability to perform tasks normally relegated to domain administrators can help. Microsoft Corp. offers no native tools for assigning such permissions, but we found products from three companies that do offer these tools.

Mission Critical Software, Inc.'s Enterprise Administrator tops the list, winning our World Class Award on the strength of its effectiveness, documentation and superb technical support. Master Design & Development, Inc.'s Trusted Enterprise Manager 2.0 (TEM) and FastLane Technologies, Inc.'s Virtual Administration Tool for Windows NT performed very well, but came up a bit short. TEM's installation was troublesome, and Virtual Administration Tool requires Microsoft's Internet Information Server (IIS) to perform remote administrative tasks.

All of the products run as an NT service on a domain's primary domain controller, though Enterprise Administrator can also run on the backup domain controller or on an NT Workstation.

Enterprise Administrator uses a hierarchy of marshal-deputy-user to assign permissions based on the user's level of administrative needs. You first designate a territory, which is a collection of network resources to be administered, appoint a marshal to manage it, then grant the marshal the necessary powers. Marshals (there can be more than one) can create deputies within their territories to handle subordinate tasks. Enterprise Administrator also lets you create virtual domains in which NT resources are pooled together based on your needs. Its administration interface is slick and simple to use.

While Enterprise Administrator allows you to designate two levels of virtual administrators, the other programs only support one.

TEM uses a distributed method of user and resource administration similar to that of the other products. It caches the domain groups and access control lists so user validation and authorization is performed faster, which is important when large domains can include 10,000 users. We were pleased to see how easy it was to assign virtual administrators and permissions for specific needs of the domain. Instead of using marshals, TEM uses the cached database for security validation. One central program is used to configure the TEM service.

As with Enterprise Administrator, one administrative program is used to configure TEM. TEM also lets you quickly reset passwords for users who forget them. Just like Enterprise Administrator, TEM can grant virtual administrators permission to modify granular functions such as logon and set account properties.

FastLane's Virtual Administration Tool also lets you collect network objects, or resources, into virtual domains. You first identify domains for Virtual Administration Tool to control, add them to the program's list of domains and then create a virtual domain. You then assign Virtual Administration Tool administrators to the program's newly created virtual domains.

The Virtual Administration Tool Manager has three menu tabs — Windows NT domains under Virtual Administration Tool's control, virtual domains created within each NT domain and virtual administrators that manage these domains. Unfortunately, Virtual Administration Tool administration is based on Microsoft's IIS and Active Server, using Visual Basic scripts to run the client tools remotely and to handle daily tasks. Without IIS, Virtual Administration Tool can be administered only at the server console on which it was installed — a significant drawback. By contrast, Enterprise Administrator and TEM use remote procedure calls to work across the network regardless of your physical location.

Two of the products were easy to install. TEM, however, was confusing to configure initially. Installing the TEM service and administration program requires two fields of critical information — the domain name and the server where TEM is to be installed — but it's not clear where or in what order you must enter them. We found it easy to create muddled service names, which we had to fix manually later.

All three products do their jobs well, but Enterprise Administrator bests the others thanks to more versatility in its command set, menu options, advanced functions and better documentation. If Virtual Administration Tool remote administration used network system calls instead of relying on a Web server, it would be a more capable contender.

Bankston is a network design and integration specialist, and vice president of operations for BCI Associates in Panama City, Fla., a front-line systems integration hardware, software and compatibility testing facility. He has designed LAN, WAN and MAN systems for 16 years. He can be reached at jeff@mail.bciassoc.com or (850) 874-2467.

Net Results

	Enterprise Administrator	**Trusted Enterprise Manager 2.0**	**Virtual Administration Tool for Windows NT**
	Mission Critical Software, Inc. *(888) 323-6768* *www.missioncritical.com/EA/EA.htm* *$900 per domain plus $16 per client*	*Master Design & Development, Inc.* *(925) 946-2111* *www.mddinc.com/Tem/index.htm* *$1,300 for 100 users,* *$8,000 for 1,000 users*	*FastLane Technologies, Inc.* *(800) 947-6752* *www.fastlanetech.com/products/vatool/index.htm* *$7 per user account*
PROS	▲ Exceptionally easy to install and use	▲ Clean interface ▲ Good documentation	▲ Most cost-effective
CONS	▼ None significant	▼ Troublesome installation	▼ Requires IIS to use effectively

Score Card

	Domain management (50%)	Administration tools (30%)	Installation (10%)	Documentation (10%)	Total
Enterprise Administrator	10 x .50 = 5.0	10 x .30 = 3.0	10 x .10 = 1.0	9 x .10 = 0.9	9.9
Trusted Enterprise Manager 2.0	9 x .50 = 4.5	10 x .30 = 3.0	7 x .10 = 0.7	7 x .10 = 0.7	8.9
Virtual Administration Tool for Windows NT	9 x .50 = 4.5	9 x .30 = 2.7	10 x .10 = 1.0	5 x .10 = 0.5	8.7

Individual category scores are based on a scale of 1 to10. **Percentages** are the weight given each category in determining the **total score.**

Management Strategies

Saving with VPNs

Memorial Hospital Alliance and Mede America prove virtual private networks can help slash costs in health care and other industries.

By Tom Duffy

Virtual private networks (VPN) are winning more corporate converts every day, primarily because they hold out the promise of significant cost savings, according to several firms that are reaping the benefits.

For a limited investment in the technology, companies can improve remote access and cut costs.

That's exactly what happened at Memorial Hospital Alliance in Mount Holly, N.J., after the hospital implemented a VPN that eventually will be used by its 30 affiliated doctors' offices. Similar savings are attributed to the newly installed VPN at Mede America, an East Meadow, N.Y., firm that handles pharmacy transactions over its network.

Memorial rolled out the VPN to several doctors and a handful of executives. The doctors use the VPN to access patient records, while the executives typically use it to access e-mail and other documents while they are on the road or working from home. Full implementation will begin this month.

"I can't think of a better solution at this point in time," says Bob Haines, Memorial's lead network administrator. "I'm ecstatic."

Bob Haines *of Memorial Hospital Alliance deployed a $12,000 virtual private network to avoid a $68,000 remote access server upgrade.*

STEVE BORNS

VPNs enable users to logically carve out a portion of the Internet for their own use. Some VPNs are managed by ISPs while others, such as Memorial's, are managed internally.

Prior to the VPN, doctors affiliated with Memorial accessed patient data using Symantec Corp.'s pcAnywhere to dial in to a ChatCom, Inc. ChatterBox remote access server. But when the hospital upgraded to Windows NT, it was faced with a costly upgrade to make the ChatterBox NT-compatible. Instead, IS turned to VPN technology.

While the network works flawlessly now, there were bumps along the way. Haines' first attempt to install a software-based VPN and firewall from Check Point Software Technologies, Ltd. failed. Bugs in the software prevented Haines from enabling the encryption for inbound traffic, even with significant help from one of Check Point's value-added resellers (VAR), he says. In its defense, a Check Point spokesperson said the VAR made repeated attempts to aid the hospital but IS eventually stopped responding to the VAR's inquiries.

Haines said after two months of frustration, he turned to Seattle-based VPN provider Aventail Corp. It took Haines only four days to set up the Aventail VPN Server software. However, connecting all the doctors' offices is not going as quickly as he would like. Many of the offices use 32-bit TCP/IP applications, so they need to upgrade their PCs to Windows 95 or NT to use the VPN. Once the offices upgrade, they will be able to connect to the network via virtually any ISP.

Haines says the experience taught him that the simpler the VPN solution, the better.

"I would tell people to go with a VPN-only solution as opposed to a firewall," he says. "With a firewall, [vendors] are trying to incorporate way too many features, and the clients end up being confused and not able to work. Aventail coexists with any firewall you have."

The cost savings from installing a VPN are significant. Instead of spending $68,000 upgrading ChatterBox, Memorial spent about $12,000 for the Aventail software. Meanwhile, the hospital no longer pays about $2,000 per month for leased ISDN lines and maintenance of bridges and routers. Instead, the hospital is simply making greater use of its T-1 Internet connection and is allowing doctors to access the network through the ISP of their choice.

There also are a lot fewer headaches. "We won't have to troubleshoot when the ISDN lines go down, and we won't have to go out to the doctors' offices," Haines says.

Executives and doctors who use the VPN are pleased with its performance. The users prefer to search through records with a browser instead of the previous text-based interface.

Haines got a chance to try it himself at the end of March when he attended a conference in Salt Lake City. "I dialed in through a local [point of presence] and kept up with my e-mail better than I do when I'm here at work," he says. "It worked flawlessly."

Mede America is equally bullish on its VPN. Pharmacies, hospitals and other health care providers use Mede America's network to verify patient membership in health care plans and to determine discounts and other pertinent information. Because Mede America handles more than 14 million transactions daily, cutting per-transaction costs even by a penny can make a huge difference to the bottom line.

In the past, pharmacies were connected to Mede America via dedicated circuits and a cross-country network of hubs and routers. That setup required Mede America to maintain an expensive bank of modems, which continually required upgrades. The company began considering other options several years ago, according to Chief Information Officer James Stinton.

Looking for a way to off-load network management tasks and reduce costs, Mede America contracted with CompuServe Network Services for use of its network. So far, Stinton hasn't regretted the decision.

"We have achieved significant reductions in the unit cost of our transactions," says Stinton, who declined to reveal specific figures. "And the VPN performs very well."

David Zimmerman, Mede America's operations director, says the VPN is flexible enough to provide benefits to virtually all of the pharmacies with which the company contracts. High-volume customers can get access via leased lines, while low-volume clients can dial in to local CompuServe POPs. Meanwhile, for Mede America, the VPN simplifies the task of network management.

"We have basically given up the network control to CompuServe," Stinton says. "It's much easier to deal with them, rather than put up hubs and routers all across the U.S."

Duffy is a freelance writer in Somerville, Mass. He can be reached at tduffy62@compuserve.com.

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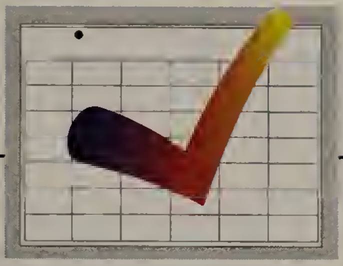

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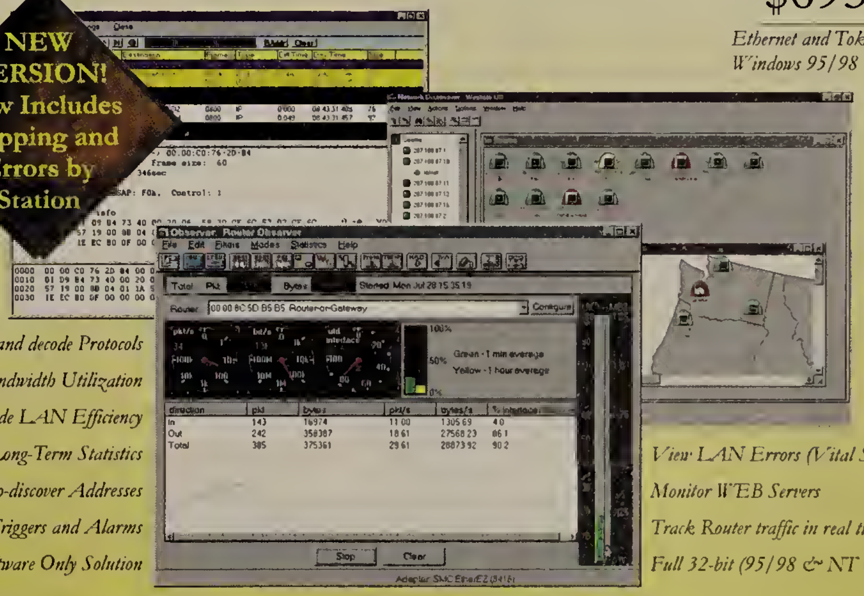

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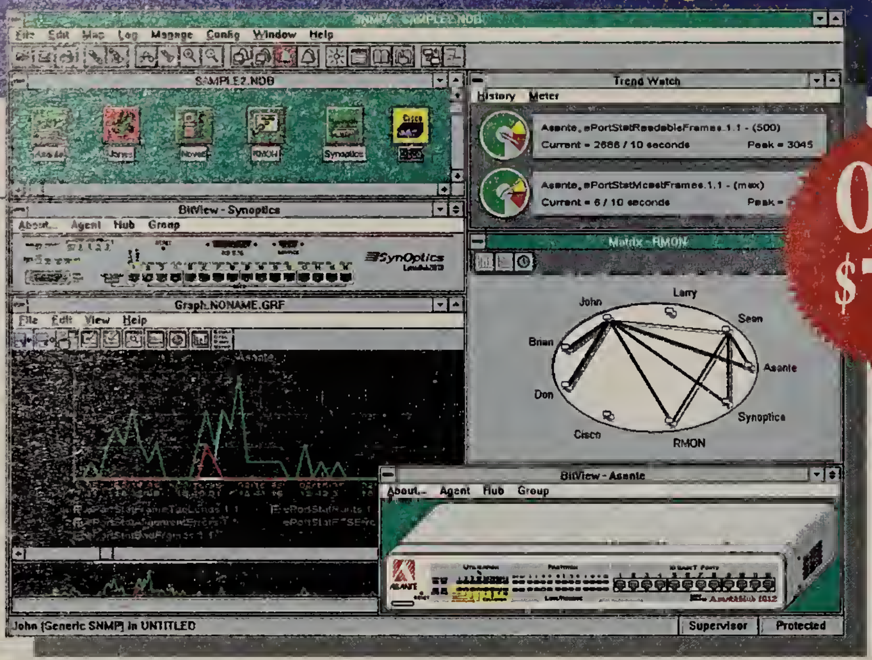

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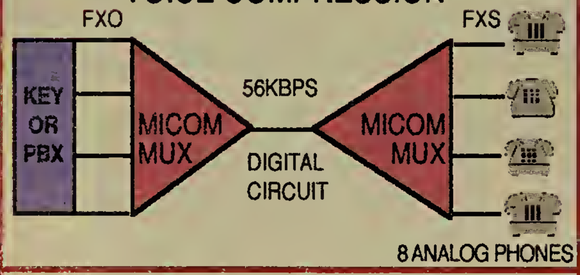

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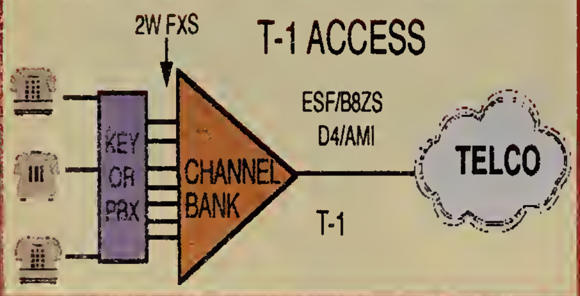

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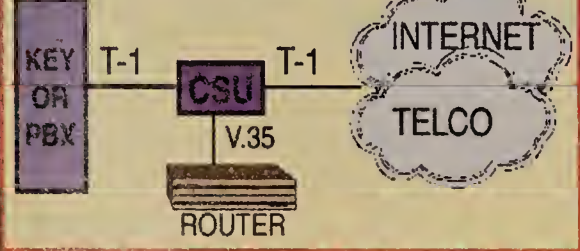

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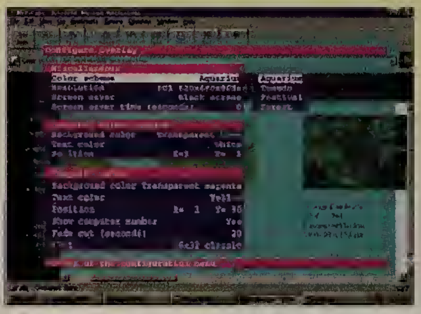

On-screen display menu–This screen shows the overlay menu with the selection for the color scheme popped up.

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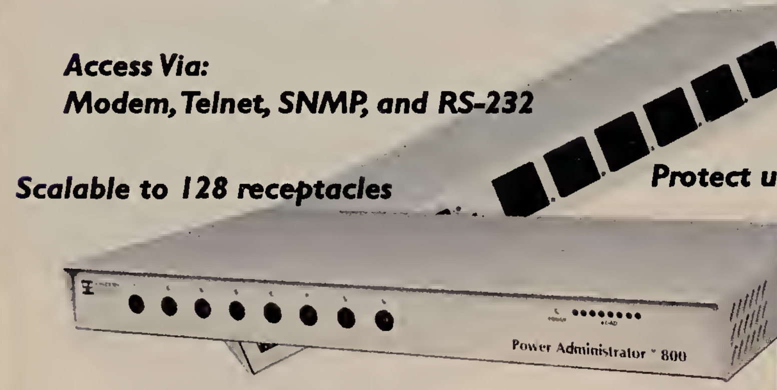

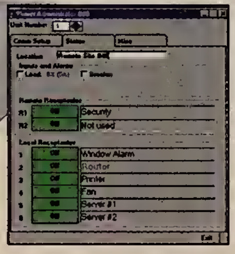

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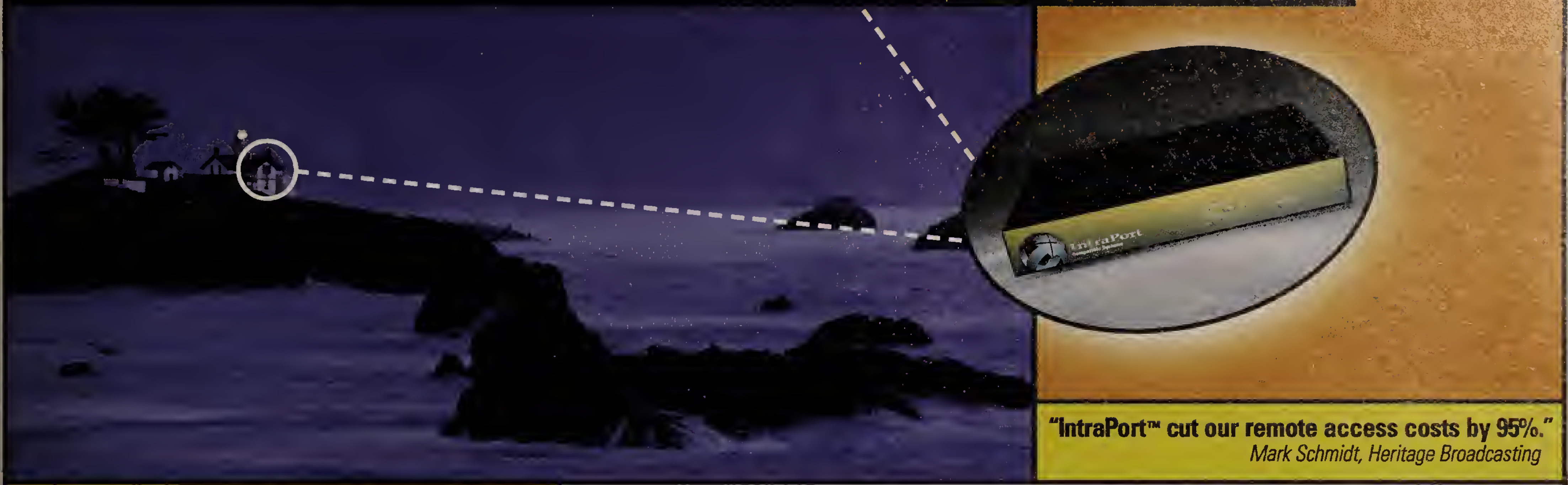

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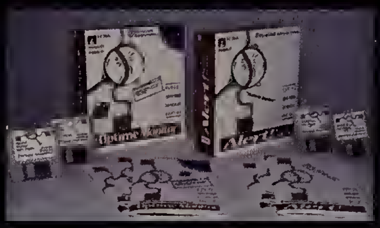

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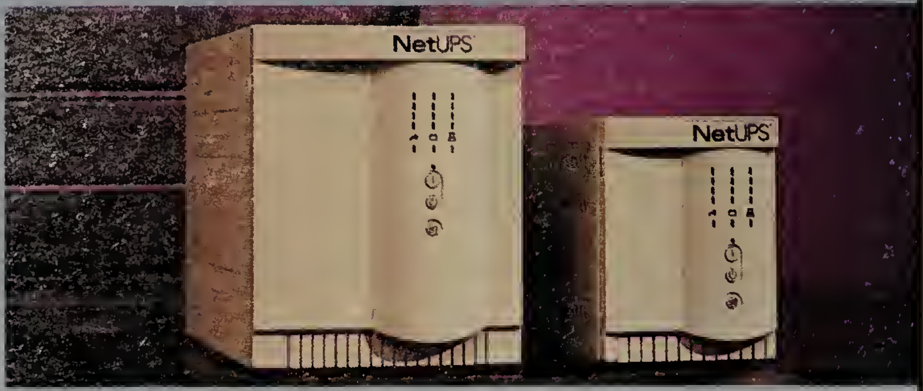

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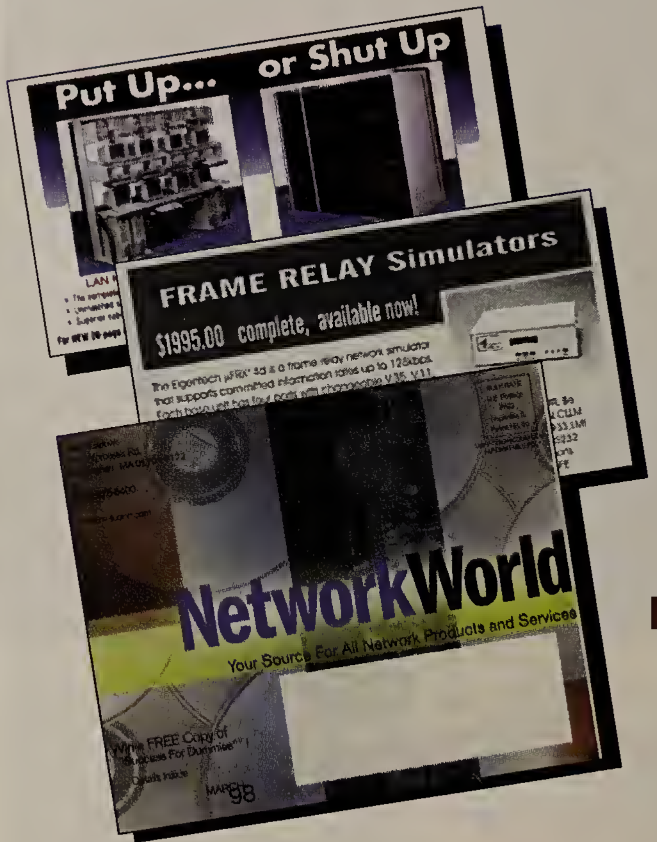
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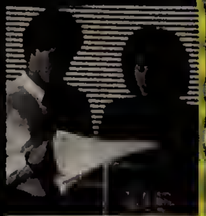

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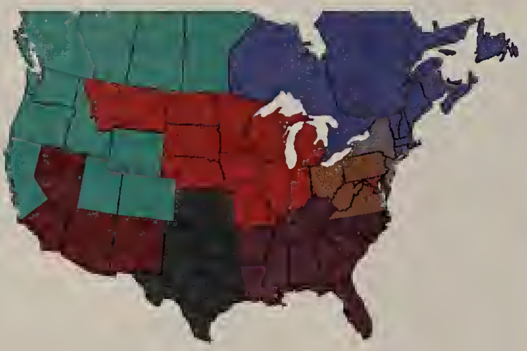

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Microsoft

Continued from page 1

maker agreed to delay the shipment of its new operating system.

In return, the U.S. Department of Justice and attorneys general from some 20 states postponed a press conference planned for last week, and held off bringing a new, much larger lawsuit against Microsoft. The mainstream press has been sizzling for weeks with talk about the Justice Department and the states planning to take legal action against the software giant for anticompetitive practices.

The feds and various state governments are considering the following measures:

- Forcing Microsoft to give PC makers broader browser options by delivering a version of Windows 98 without Internet Explorer.
- Making Microsoft craft less restrictive contracts with PC makers concerning browser installation and control over the content of a PC's opening screen.
- Forcing Microsoft to eliminate agreements with Internet firms, such as ISPs, that favor Microsoft software.

This is all exciting news, but do buyers and users of this stuff really care? *Network World* interviewed network professionals last week, and quite a few want the government to keep its mitts off Microsoft.

"The [Justice Department] should back off. Novell has a huge installed base, Unix still has the high-end market. . . . The others should just try to make their products better," said Dwight Gibbs, chief technical fool at online financial adviser The Motley Fool, Inc.

"Bill Gates once said, 'We put software in boxes and then put those boxes on the shelf. How is that predatory pricing?' " said Nick Arnett, independent analyst and former Verity, Inc. product manager. "You look at the real robber barons of industry and Microsoft is a pussycat in comparison."

"Look at history and the progress of time. Look at what happened to [Digital Equipment Corp.] Look at what's happening to IBM. Bill Gates won't live forever. Can someone come along and threaten Microsoft? Sure," said Sergio Cortez, director of standards and resources for Litton Industries, Inc. in Woodland Hills, Calif.

Others said government action may be unwarranted. "If Microsoft is doing something monopolistic in the shipment of Win98, then they should be stopped," said John McFarlane, CEO of Software.com, Inc. in Santa Barbara, Calif.

Regardless of Microsoft's feistiness and negotiating skills, some feel that the government will simply get its way. "You've got these two huge juggernauts going at each other, and since the government seems to make its own rules, it is obvious who is going to have to give," said Loki Freyr, a network administrator for Farallon Capital Management in Redwood Shores, Calif. "Bill Gates is going to end up having to make some sort of changes in the Microsoft business structure."

Minor victory

Last Tuesday, a federal appeals court ruled that the stipulations placed on Windows 95 as a result of the original Justice Department lawsuit could not be extended to Windows 98. Those stipulations were that Microsoft must provide a choice of Windows 95 versions to OEMs, one of which does not include Internet Explorer.

Despite the impending legal situation, Microsoft is still planning to ship the retail version of Windows 98 on June 25.

Senior Editor Andy Eddy contributed to this story.

Sun seeks to block Java-incompatible Windows 98

As far as dramas go, this one didn't have any legs.

In the latest legal go-round between Sun Microsystems, Inc. and Microsoft Corp., Sun held a press conference last Tuesday to announce it had asked a U.S. District Court judge to prevent Microsoft from releasing a Java-incompatible version of Windows 98.

Microsoft countered, dismissing Sun's claims in a teleconference a few hours later.

By Thursday, Sun's court bid had been overshadowed by news that Microsoft would delay shipping Windows 98 to OEMs from Friday until today, while the company conducts last-minute negotiations with federal and state prosecutors.

Alan Baratz, president of Sun's Java software division, said Sun took action because Win98 source code provided in March by Microsoft failed recently completed Java compatibility tests. "Microsoft has continued to seek ways to flout its contractual obligations," Baratz said.

While denying that Sun was seeking to stop the shipment of Windows 98, Baratz said the company wants the judge to order Microsoft to choose any of the following options: 1) Ship Windows 98 with a fully compatible version of the Java technology. 2) If Microsoft chooses to ship an incompatible implementation of Java with Windows 98, then the firm must also bundle Sun's Java Runtime Environment with the operating system. 3) Remove any incompatible version of Java from Windows 98.

Sun also has asked the court to order that Microsoft tools for building Java applications be allowed to ship "only if those tools create fully compatible Java applications," Baratz said.

The judge must hear Microsoft's arguments before making any decision. The next court date has been set for late July.

— *Chris Nerney*

"Microsoft has continued to seek ways to flout its contractual obligations."

Alan Baratz, president, Sun's Java software division

Bay

Continued from page 1

nounce a Bay acquisition at the Supercomm '98 show in Atlanta June 8.

The amount of the alleged Nortel offer is not known, but sources say it was between $32 and $35 per share, or $7.3 billion to $8 billion. Bay shares are currently trading at $26.38.

Observers believe Bay will agree to be acquired for $40 per share, or $9.1 billion. The company's market cap is currently $5.5 billion.

The time is now at hand for Bay, Cabletron Systems, Inc. and even perhaps 3Com Corp. to woo a telecom suitor in order to compete with Cisco Systems, Inc. in the voice/data megabattle of the next millennium.

Cisco is the pre-eminent supplier of IP routers for the enterprise and service provider markets. The network giant became an instant force in WAN switching with its $4 billion purchase of StrataCom, Inc. two years ago.

With the industry moving toward converged voice and data over IP networks, Cisco is entering the ranks of the Nortels, Lucents, LM Ericssons and Siemens AGs of the world and leaving its Big Four brethren behind. But while Cisco chases Nortel, Lucent Technologies, Inc. and others, Bay, Cabletron and 3Com are still chasing Cisco.

Unfortunately, Bay, Cabletron and 3Com lack the financial, market and R&D wherewithal to catch Cisco on their own, observers say. However, Nortel, Lucent and other telecom powerhouses lack data expertise.

It therefore behooves Bay, Cabletron and 3Com to beautify their enterprise assets to attract and marry one of the telecom heavies. And last week's alleged Bay/Nortel overture is yet another indication of the need to woo a suitor.

"It's symptomatic of the ongoing, continuing convergence of the voice and data world, and the pressures to establish a critical mass," said Andy Schopick of Nutmeg Securities. "I wouldn't dismiss [these reports] as being some ridiculous thing. If it's not Nortel [coveting Bay], it could be somebody else, and I think we will see one or two megamergers over the next six to 12 months in the networking arena."

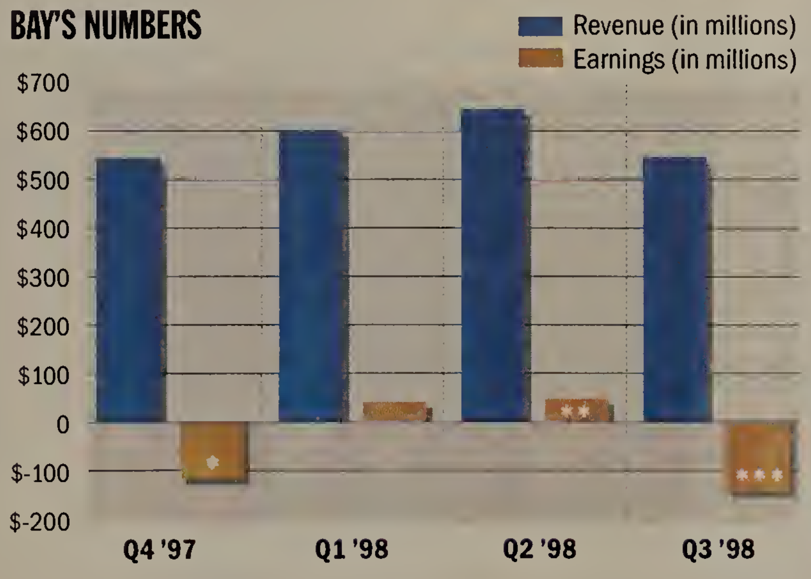
"Bay's been in play the whole time," said Scott Heritage, an analyst at UBS Securities in New York. "This is not new. There's been speculation going on [about a possible acquisition] for the last six months."

Before last week's development, the popular belief was that Lucent would make a run at Bay, given that the companies have a multimedia technology sharing and joint product development partnership going back two years. More recently, Lucent acquired Yurie Systems, Inc., a maker of ATM access multiplexers, that Bay is reselling under an OEM arrangement.

Conversely, Nortel has been allied with Cabletron for more than a year in a "Power Network" partnership to build integrated voice/data multimedia networks. But analysts note this

See **Bay,** *page 64*

BAY'S NUMBERS



Bay's fiscal year ends June 30.

* Includes a charge of $148.5 million related to the acquisitions of Rapid City Communications and Isotro Network Management, Inc.

** Includes a charge of $7.4 million related to the December 1996 acquisition of NetICs.

*** Includes a charge of $154 million related to the acquisitions of New Oak Communications, Inc. and Netsation, Corp.

Oracle

Continued from page 1

cers in the past few weeks have been sounding a consistent theme: Very low-cost Windows PCs, equipped with Web browsers and TCP/IP net access, will rule the desktop — not NCs!

In fact, Oracle officials now claim that the personal computer has become, or is becoming, a network computer.

No comment

The Oracle CEO has acknowledged that these "new" PCs will block the network computer — as defined by Ellison — from corporate desktops. But that doesn't really matter, he said, because the PC is becoming simply an appliance, and the primary user interface is becoming the browser.

Ellison wouldn't talk to *Network World*, but Oracle Senior Vice President Mark Jarvis took on the job of spin control.

"We say the PC has mutated: if it has a browser, it's effectively become an NC," he said. "[When accessing Internet data and applications, a PC] uses the local disk only to load the browser."

"When people pull up their browsers and go out on the 'Net, they're doing network computing, not personal computing. From Oracle's viewpoint, our goal is to make all our database applications accessible via the Web browser," Jarvis said. "This [browser] is the true zero administration client: to access these database applications, all you need is the browser."

Industry reaction to Ellison's revisionist theme ranged from outright contempt to bewilderment.

"This is one of his most pathetic attempts yet to weasel out of his absurd predictions," said Jesse Berst, a long-time PC pundit and currently editor of www.anchordesk.com, an Internet news service for computer technology. "I was at several of the events where he launched the NC, and it didn't even include a hard disk when first promoted."

"[Ellison] is dancing quite nicely as he exits the [NC] business," said Roy Graham, senior vice president of sales and marketing at Wyse Technology, Inc., a San Jose, Calif., builder of Windows terminals. "The NC was always positioned as an alternative to the PC," he said.

Wyse last year scrapped plans for an Ellison-inspired Java network computer, arguing that customers were not ready to replace laboriously built PC client/server systems with untried Java devices.

Some MIS directors seemed less willing than Ellison to throw in the corporate NC towel.

"It doesn't make a hell of a lot of sense to me to have a full-blown, high-powered PC, even if it does cost less than $1,000, because of the cost of ownership of these devices — for support, for help desk, for administration," said Dave Klinzman, director of IT, Long's Drug Stores Corp. of Walnut Creek, Calif. "Even if you can buy a PC for $700, that's only the cost of acquisition — that's not the cost of maintaining the damn thing."

The NC fad started almost unnoticed nearly three years ago at Telecom 95 in Geneva, where Ellison made a public pitch for a $500 "communications device" designed specifically as an Internet client.

Within a few months, the idea was sparking enormous controversy and was sarcastically derided by PC stalwarts.

However, the NC idea prompted MIS and business managers to take a fresh look at just what PC computing was costing them.

That cost was growing every year, fueled by ever-larger Microsoft Corp. systems and application software, coupled with ever-more-powerful Intel Corp. processors.

This crystalizing of customer resistance prodded Microsoft and Intel to respond to Ellison's NC drumbeating.

First the vendors came out with a specification for the NetPC, a sealed PC with additional software so that it could be better managed over the network and loaded with software from a central server.

And early this year Intel announced it was creating a specification for "lean clients" that would use Intel processors but could run a range of thin-client operating systems.

At the same time, NC shipments have lagged, hamstrung by the lack of Java applications and by Sun's delay of nearly a year in shipping its JavaStation NC. ■

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How Oracle's Ellison has changed his tune

May 1996
Larry Ellison said of the network computer: "It will change our economy. It will change our culture. It will change everything."

Nov. 1996
"We will never move to the information age if we have to rely on the PCs to get us there. . . . People can't afford them and don't understand how to use them. The NC is a communication and information access device, not a computation device."

1996 1997 1998

Sept. 1997
"We need to relocate complexity off the desktop and move it back into the network where it belongs."

May 1998
"The corporate NC has really been eclipsed by the PC becoming an NC, in price and in function. So that's with us. We don't make a lot of money in that business, anyway."

Bay

Continued from page 63

union has produced little, if any, power to date.

3Com, meanwhile, has a partnership with Newbridge Networks, Inc. and Siemens to deliver desktop-to-desktop class of service over IP networks.

Its relationship with Lucent aside, Bay might be better served to wait until October to wed a telecom company. October is when Lucent is allowed to use the pooling of interests method to acquire a company.

Pooling of interests allows companies to combine balance sheets and report higher earnings without tax impact. Lucent was prohibited from pooling for two years after being spun off from AT&T.

Not only would pooling be attractive for Lucent, it might raise the price for Bay because Nortel and Lucent could get into a bidding war for the company. Indeed, some speculated that any Nortel offer would be a preemptive move to swipe Bay from rival Lucent before October.

Users seem resigned to the prospect of Bay being snapped up sooner or later.

"It probably would just make them stronger," said Randy James, vice president of development at Community First Bancshares, Inc. in Fargo, N.D. "It probably would make sense for a combination like that, but I don't see that there's anything [Bay is] lacking strategically." ■

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In light of buy, Bay builds

Could it be that Nortel wants Bay Networks, Inc.'s routers?

Nortel might, since Bay enhanced its Backbone Concentrator Node (BCN) last week. Bay said it will ship Gigabit Ethernet link modules on the BCN early next year. Bay will also ship a new, faster processor board for the modules at that time, as well as Multi-Link Trunking on the BCN.

Multi-Link Trunking combines multiple full-duplex Fast Ethernet links into a single virtual 1G bit/sec trunk.

The Gigabit Ethernet link is intended to provide a high-speed pipe into Bay's Accelar 1200 backbone switches. The BCN can then provide enterprise backbones with WAN access and remote access concentration.

The new processor module for the Gigabit Ethernet card is based on a single PowerPC that Bay claims can forward 350,000 packet/sec. In a "one-armed router" configuration — in which the router is connected to a switched backbone via a single high-speed link — the processor can forward 3 million packet/sec, Bay said.

In addition to the new processor, Gigabit Ethernet link and Multi-Link Trunking capabilities, Bay next month will also unveil new BayRS routing software that supports the IEEE 802.1q protocol for virtual LAN tagging. In November, Bay will unveil yet another release of BayRS — Version 13.10 — that will feature IP Security and a prestandard version of the IETF's Multiprotocol Label Switching (MPLS) technology.

MPLS switches IP packets over ATM and frame relay virtual circuits.

The Gigabit Ethernet link module will cost $13,000. The PowerPC processor modules will cost $20,000. Multi-Link Trunking will be included in BayRS 13.20. All three will ship in the first quarter of 1999.

Bay can be reached at (978) 670-8888.

—Jim Duffy

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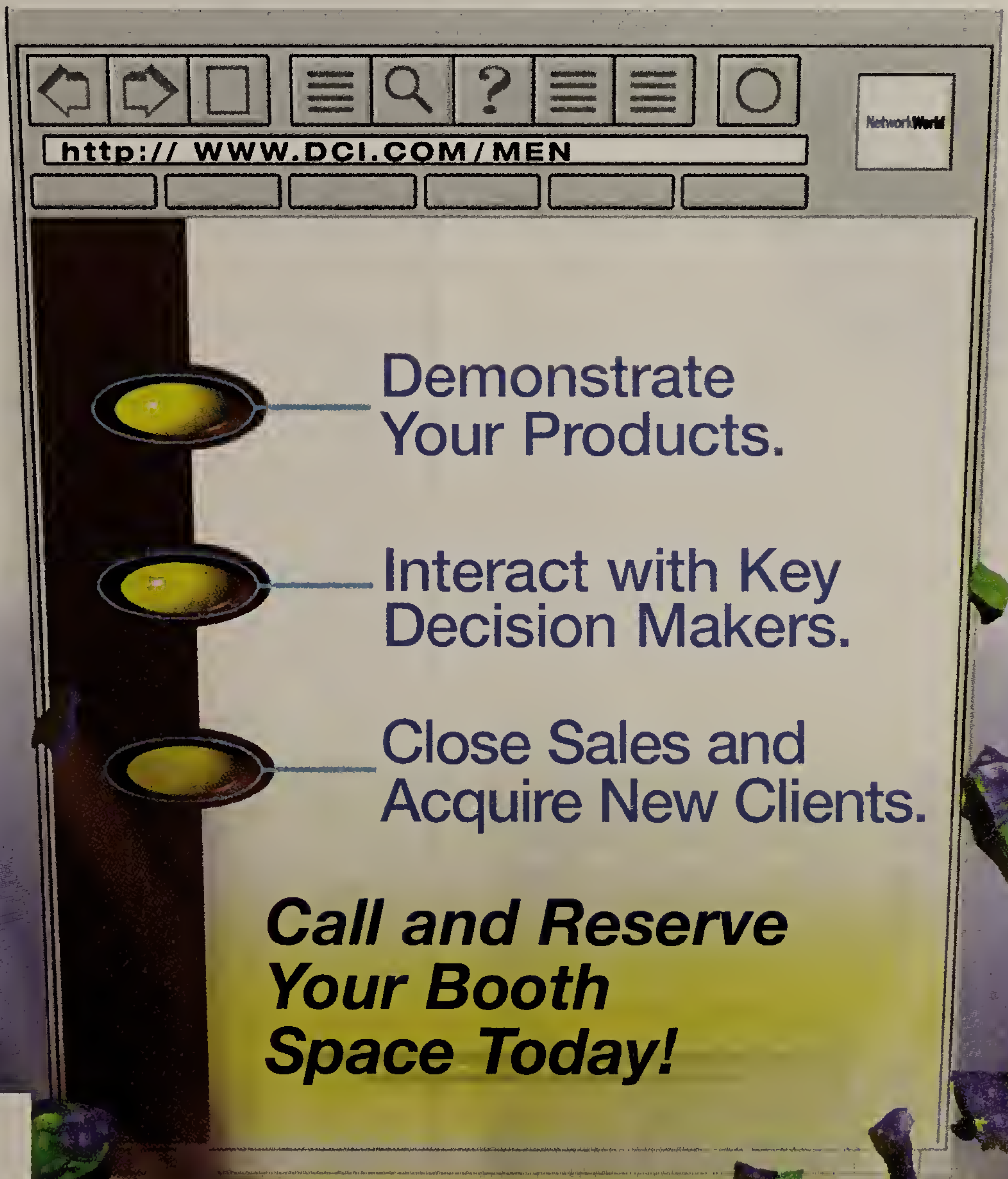

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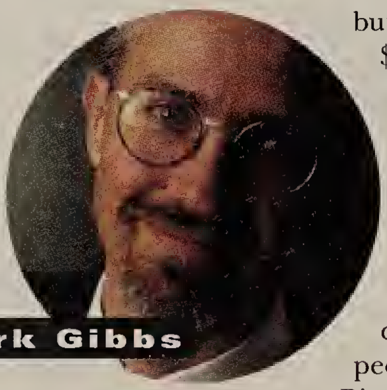
Backspin

Watching our miserable lives on the Internet

If there's one television show that I find irritating, it's MTV's *The Real World.* In this episodic, fly-on-the-wall observation of the lives of five 20-somethings in a way-cool apartment in (I think) Venice, Calif., we get to see how trivial and inane other people's lives are.


Mark Gibbs

Indeed, "other people's lives" is the subject of a whole gamut of programming that starts with *The Real World* and culminates in the life-and-death world of *Emergency.* This show is definitely an extreme — we get to see an emergency trauma team work on people for everything from overdoses to heart attacks.

In short, our culture likes watching and listening to the details of other people's lives; we are becoming a nation of voyeurs. Just consider that Jerry Springer now gets better ratings than Oprah Winfrey!

Of course, the online world has its equivalents. At the low end are the unfocused libidinous ramblings of the denizens of the "hot tub" and other lowlife channels on Internet Relay Chat. After that, there's the torrent of self-indulgent, puerile smut found on practically all Usenet newsgroups.

The obsession our culture seems to have with trivia, other people's lives, sleeze and smut is amazing, and computers and the Internet are perfect vehicles. Just open any consumer-oriented computer magazine, and you'll find advertisements for porno CD-ROMs with "wife-proof labels"!

One Internet site, run out of a garage in Los Angeles, offers what I shall call "live shows" via teleconferencing and is reputed to have earned its owners $275,000 last month.

While pornography is a pretty obvious consequence of cheap, anonymous connectivity, discovering that people are similarly fascinated by the life of a quite ordinary woman, and will watch her over the Internet, is quite surprising.

I am referring to Jennicam (www.jennicam.org), the Web site that has been observing the life of one Jennifer Kaye Ringley for some years. Jennicam displays a picture of Ringley's bedroom and living room once every three minutes (she does sometimes turn it off for shy visitors). But in general, Jennicam shows everything Ringley does, including many of the more intimate moments of her life. Originally, Ringley allowed anyone to observe, but now you have to pay a $15 fee to help offset her connection costs. Considering her site gets a reputed 100 million hits per week, her server needs a fairly hefty pipe to handle the load. She claims that some 5,500 people have subscribed.

Ringley, a Web site designer living in Washington, D.C., has said many times that she isn't doing this for money, and certainly the $82,500 revenue from subscriptions isn't going to make her rich.

What is really fascinating is the huge response the world, not just the 'Net, has had to Jennicam. From denunciations by TeleCommunications, Inc. President Leo Hindery to interviews with the BBC and National Public Radio, and guest spots on network talk shows, everyone is either fascinated, enraged, entranced or obsessed by the life of a relatively average person.

It is not like Ringley is alone. There are scores of other personal "cams" on the 'Net providing the same kind of fly's-eye view. The Internet is taking us to the next level of voyeurism, and it's a game anyone can play.

We're evolving into a strange culture, and the Internet is bringing out our oddest drives and interests. Brother Theodore on *Late Nite with David Letterman* once commented: "You are born, you live your life in torment and humiliation and then you die. . . . You need to watch television to distract yourself from your miserable destiny." To that we can now add watching the miserable destiny of others over the Internet.

So what do you watch? Channel recommendations to nwcolumn@gibbs.com or on (800) 622-1108, Ext. 7504.

'NET BUZZ

The latest on the Internet/intranet industry

By Chris Nerney

LATEST WALL STREET CONNECTION One thing we've learned about the Internet is that it doesn't work as well if you don't have a connection.

Therefore it is no surprise that companies promising dependable, cost-competitive Internet access tend to be highly valued.

This in large part explains the strong Wall Street debut of national ISP **Verio, Inc.,** which last Tuesday launched a public offering of stock that raised $126 million.

Opening at $23 per share, Verio's stock price surged above $27 by the close of trading that day.

Based in Englewood, Colo., Verio was founded by some former **Nextel** executives in 1996 as **World-Net Access, Inc.** In March 1997, the company snapped up a bunch of smaller ISPs and renamed itself.

Verio targets small and midsize businesses, offering basic Internet access, electronic commerce and Web hosting services.

The company has attracted more than $80 million in venture capital from several sources, including **Norwest Venture Capital, The Centennial Funds** and **Bessemer Venture Partners.**

However, Verio is deep in debt, thanks to an aggressive acquisition strategy designed to give the company a presence in every major U.S. market. The company is expected to report a $28 million loss in the quarter ended March 31.

Further, Verio faces tough competition from other national ISPs such as **UUNET, PSINet** and **Digex,** as well as the **Baby Bells** and other telcos trying to expand their services.

For now, at least, Wall Street is willing to overlook these risks.

IT SOUNDED SO EXISTENTIAL When we first heard that the folks at **Solid Oak Software, Inc.** were starting a Web site called **WhoAmI.com** (www.whoami.com), we rejoiced: At long last, we thought, a Web site that can help us find ourselves. And the price — it's free — certainly compared favorably with an hour a week on the couch or a small fortune in self-help books. (Goals? We got 'em! To-do lists? We got 'em!)

Then we looked at the fine print, and our hopes were dashed. Rather than help people find out about themselves, WhoAmI.com is designed to help other people find out about you. Isn't that what credit-reporting agencies are for?

Solid Oak, which makes the CyberSitter line of Web filtering software, has patterned the new personal profile site after America Online's "My Profile" feature.

Internet users can publish personal information, such as age, occupation, location, hobbies, past lives, favorite prisons, etc. But no funny business: Solid Oak says it won't allow information that is "slanderous, illegal or found to be deliberately misleading or untruthful."

Darn it all. There goes our plan to slander ourselves and then sue.

EASING THE INTRANET EXPERIENCE Start-up **Intraware, Inc.** of Orinda, Calif., has wrapped up an $11.8 million round of venture funding with a number of investors.

Founded in September 1996, Intraware offers network professionals one-stop shopping for intranet software. From the company's Web site (www.intraware.com), customers can learn about and test intranet software from a variety of vendors, purchase software and receive automatic notification from Intraware of any upgrades.

Investors in the recent round of funding — Intraware's third — include **Attractor Investor Management, Technology Crossover Ventures** and **Hambrecht & Quist.**

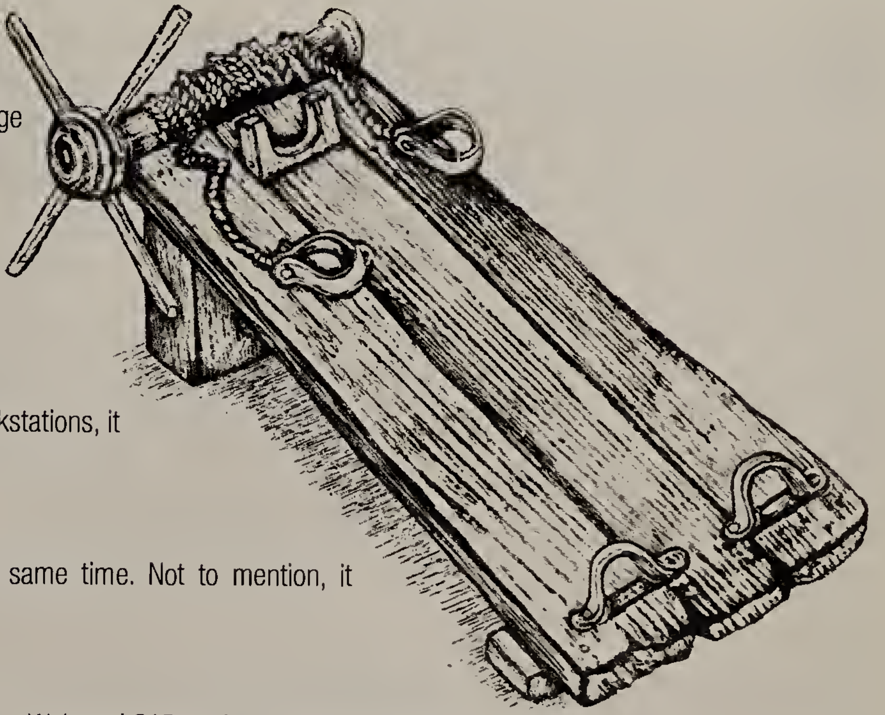
Intraware, which currently employs about 85 workers, last December received capital from the **Kleiner Perkins Caufield & Byers Java Fund.**

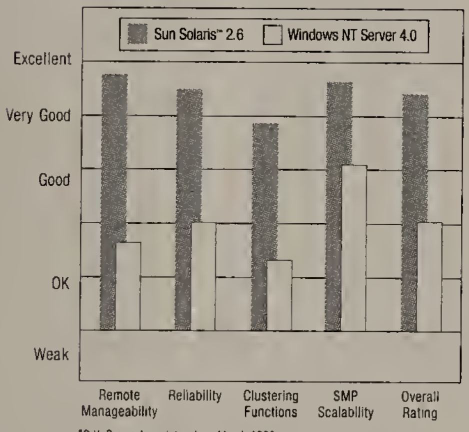
In April the start-up released a service called Compariscope, which enables subscribers who pay $10,000 to access a database containing information on and comparisons between a number of Java-based intranet products.

We still don't know who we are, but by reviewing your best Internet- and intranet-related news tips, we hope to gain some much-needed perspective. Don't leave us hanging. Contact Chris Nerney at (508) 820-7451 or cnerney@nww.com.

RUNNING ENTERPRISE APPLICATIONS ON AN NT SERVER?

Whatever you choose to do in the privacy of your own office is your business. But if you rely on a Microsoft Windows NT Server to run your company's key business applications, the result could be torturous. In fact, according to D.H. Brown, servers running on Windows NT "continue to fall short of being able to support enterprise requirements.*" So why not indulge in something a bit less agonizing? The Sun™ Enterprise™ 450 Workgroup Server, starting below $15,000, not only delivers print and file services for your PCs and workstations, it runs multiple enterprise applications at the same time. Not to mention, it whipped NT in datawarehousing, Lotus Domino, Web and SAP performance. And because the Sun Enterprise 450 is part of a family that scales up to 64 processors, you'll never have to sacrifice business-critical scalability. Plus, Sun supports their entire line of servers with worldwide customer service. So call 800-SUN-FIND or visit sun.com/wgs/nwd to avoid a potentially painful situation. Unless, of course, you're into that sort of thing. THE NETWORK IS THE COMPUTER.™





*D.H. Brown Associates, Inc., March 1998

Sun microsystems

WHAT IS IT YOU PEOPLE DO FOR FUN?

*Refers to D.H. Brown Associates, Inc., *Solaris Outpaces NT For Enterprise's Intranets*, March 1998 study comparing Microsoft's Windows NT Server 4.0 with Sun's Solaris 2.6 operating environment.

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Take everything you know about frame relay and forget it.

Visual UpTime shatters the idea of unreliable frame relay.

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So forget the old ideas and embrace a new one – one that major carriers and RBOCs have embraced by incorporating Visual UpTime into their offerings. Ask your service provider for frame relay service based on Visual UpTime. If they don't offer Visual UpTime...then contact us. We'll tell you who does.

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